

Monica J. Harris

EDITOR

BULLYING, REJECTION, & PEER VICTIMIZATION

A Social Cognitive Neuroscience Perspective



Bullying, Rejection, and Peer Victimization

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*A Social Cognitive Neuroscience
Perspective*

MONICA J. HARRIS, PhD

Editor

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For my husband, Jonathan, with love

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Preface

Middle school, in my humble opinion, is hell on earth. In my case, I was thrust from a small, cozy elementary school with small classrooms full of children who had all known each other for years, and for the most part liked each other, to a large, impersonal junior high school where there was a definite status hierarchy, and the students at the bottom of this hierarchy were often mercilessly teased, physically intimidated, or even physically attacked.

The victim I remember the most was Mike Monroe (not his real name). Mike was, well, just plain weird. He committed the unforgivable middle school sin of wearing pants that were too short (“flooders”); he was awkward in conversation; and he was interested in things no self-respecting middle schooler at that time would admit to being interested in. For example, one day in English class he and his only friend (another misfit) went to the front of the class dressed as Trekkies and delivered a Star Trek sketch, to the bemusement of the rest of the class.

Mike became the whipping boy of O. A. Peters junior high in the mid-1970s. When it became evident that he was attracted to a particular girl in the class, the others would taunt him publicly about his crush in front of her, while he stood there mute, blushing miserably and unable to stop the teasing. Then one day one of his tormentors got the bright idea to tell Mike that the young girl in question wanted to hear him sing, and so they loomed threateningly around him and ordered him to sing a song. This he did, a capella, warbling badly. Within minutes a large group of jeering adolescents gathered. The principal was called to disperse the crowd. This was evidently considered to be so riotous that the next day poor Mike was once again commanded to declare his love for the girl through song, and once again the principal was called into action.

For the remainder of my time at Peters, Mike was frequently the butt of jokes or physical pranks, or was simply ignored as irrelevant. We then went to different high schools and I never heard of him again. Out

of curiosity I recently tried to track him down, but his real name is annoyingly common and I was unable to find him.

But I wonder what became of him. O. A. Peters was kinder to me than it was to Mike Monroe, but that is not saying much. On the popularity ladder of middle school girls, I was planted firmly on the second rung, above the special education students but below just about everybody else. Most of the time I was merely ignored, but there was one notable exception. One day I was walking with a friend at lunch break, when a group of about 7 or 8 tough-looking girls—none of whom I even knew—sidled up to us. My friend and I knew we were in trouble when the leader of the gang veered toward us, shoved my friend roughly with her shoulder, and then accused *us* of pushing *her*. We were quickly surrounded and informed that we needed to get on our knees to apologize, and when I refused to do so (what the *heck* was I thinking?!), I was assured that I could look forward to being beat up after school.

I didn't learn anything the rest of the day, as I spent my time worrying about my imminent demise. I didn't tell a teacher or authority person about the threat. Why, I don't know. I probably thought it wouldn't help and would only get me in worse trouble. The second the dismissal bell rang, I ran lickety-split in the opposite direction I normally went and took a circuitous route home, roughly three miles out of the way, heart pounding the whole time. I followed this strategy the next few days until I became convinced the gang had lost interest in me.

My story, of course, is not unique. Most people have one like it. A smaller percentage has stories more like Mike Monroe's, with repeated bullying and/or rejection that may lead to lasting psychological or physical scars. And at the extreme, there are the Columbines where we see the lengths that some youth feel driven to when they have been rejected and tormented.

Decades later, I am convinced that academic psychology has something to offer the children who must navigate often cruel social worlds; the educators and clinicians who struggle to make these social worlds safer and happier; and the parents who want nothing more than to shield their children from the (perhaps inevitable) pain—emotional and physical—inflicted by their peers. This book is intended to be one step in the journey from asking to understanding to helping.

Editing a book is an endeavor that does not seem daunting at all until one actually undertakes the effort, when it becomes a much different story. My gratitude is enormous toward the many people who helped me throughout the process: Richard Smith, who coached me

through the proposal stage that was essential to getting the project off the ground; my editor, Philip Laughlin, who was encouraging at every step of the way and also answered—patiently—countless silly questions about manuscript preparation; the group of eminent scholars who did me the great honor of contributing to this volume; my colleague and buddy, Rich Milich, whose not-so-gentle nagging through countless walks to the campus Starbucks ensured that the book would meet the deadline; and, of course, my husband and children (Hi, Athena! Hi, Isaac!), who graciously tolerated the far too many times when I had to say, “Not now; Mom’s got to work on her book.”

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Introduction

PART
I

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1

Taking Bullying and Rejection (Inter)Personally: Benefits of a Social Psychological Approach to Peer Victimization

MONICA J. HARRIS

The bully-victim encounter is iconic in modern culture. Simply saying the word *bully* conjures up any number of mental images, from the scenes in *A Christmas Story* where Scut Farkus terrorizes poor little Ralphie, to the Charles Atlas body-building ads where the skinny guy gets sand kicked in his face, to more somber memories of school shootings that result in the deaths of innocent bystanders. Along with cultural awareness of peer aggression, there has been a long history of academic research attention to these issues, particularly within the field of developmental psychology. Much of this research has focused, however, on one side or the other of the bully-victim dyad. Yet peer victimization is first and foremost an *interpersonal* phenomenon and as such needs to be understood and studied that way.

Bullying and peer victimization would thus seem to be tailor-made for the field of social psychology. However, while there is a healthy body of social psychological research on aggression and rejection in general, primarily using college students as participants, very little work in the field of social psychology has dealt specifically with the issues of peer aggression in childhood. At the same time, developmental, school, and clinical psychologists focusing on peer victimization issues have not always availed themselves of theoretical and methodological developments within social psychology that might prove useful in tackling this topic.

The purpose of this chapter, and the major purpose of the volume as a whole, is to make a case for a social psychological approach to this most quintessential of social experiences. I begin with a brief summary of the relevant domains being studied; I discuss what is meant by a “social psychological approach” and how such an approach can be applied to studying bullying and peer victimization; and I end with a brief survey of the chapters in this volume and how they achieve this application.

DEFINING AND DISTINGUISHING AMONG BULLYING, PEER VICTIMIZATION, AGGRESSION, AND REJECTION

Perhaps one reason researchers from different disciplines appear to be talking past each other so often is that scholars tend to use different terms for similar processes, and these terms may ultimately end up being reified into distinct concepts and subareas where little cross-talk occurs. To give one example, a prototypical incident where one child hits another could be variously called bullying; aggression; mobbing; school violence; peer victimization; direct aggression; proactive aggression (if the hitting were unprovoked); reactive aggression (if the aggressor were retaliating for a prior hostile act by the victim); hostile aggression (if the aggressor displayed angry affect during the event); or instrumental aggression (if the aggressor hit the victim to induce him to yield lunch money)—just for starters.

And if we change our prototypical example to be a hostile insult, we open up another whole set of terms: verbal aggression; teasing; harassment; indirect aggression; relational aggression (if the insult was intended to damage the victim’s social standing in the peer group); interpersonal rejection (if the insult is intended to exclude the victim from the peer group); and cyber-bullying (if the insult was delivered via Internet).

Defining and distinguishing among all these terms is clearly beyond the scope of this chapter, but a few salient observations may be useful. First, all of these terms fall under the umbrella of *aggression*, for which it is difficult to improve upon the classic definition of *any behavior, verbal or nonverbal, that is intended to harm another living being who is motivated to avoid such treatment* (Baron & Richardson, 1994). While such a definition may be overly broad, it does help to make a key point: The domain of this chapter, and volume as a whole, is intentional hurtful behavior directed from one or more person(s)

toward another, and that behavior does not have to be physical to be hurtful or aggressive.

The definition of *bullying* is trickier and has changed over time (Smith & Monks, 2008). Many researchers in the field use a conceptual definition offered by Daniel Olweus, the researcher who could be said to have started scholarly work on the topic of bullying. This definition identifies three criteria essential to bullying: (a) intentional negative actions or harm-doing; (b) these actions are carried out repeatedly and over time; and (c) the bully-victim dyad is characterized by an imbalance of power, such that the bully is in a position of greater psychological or physical strength than the victim (Olweus, 1994, 1995). While this definition has spawned a great deal of useful research and intervention efforts, its narrowness poses certain difficulties. First, the idea that aggressive acts must be repeated over time to count as bullying is debatable, as a child who suffers a single but dramatic incident of physical abuse on the part of a peer would almost certainly consider it to be bullying, even if the researchers do not.

Second, while the criterion that bullying must involve a power imbalance catches well the subjective experience of intimidation and fear that is a hallmark of bullying, it is a criterion that is difficult to operationalize (what is “psychological strength” anyway?) and is subject to circular reasoning: A given incident is judged to be bullying because one member of the dyad suffers at the hand of another, who by definition possesses less physical or psychological strength or feels powerless. Further muddying the definitional waters is that *peer victimization* is the logical flip side of bullying (bullying does not occur without a victim), yet definitions of peer victimization do not necessarily include similar criteria of repeated encounters over time or imbalance of power.

Because a major goal of this edited volume is to provide new perspectives and encourage cross-disciplinary collaboration on the topic of peer victimization and aggression, I will err on the side of inclusion in specifying the domain(s) under discussion. Most important in that regard is that forms of both physical aggression (classic bullying) and verbal or relational aggression will be addressed. Many children (and adults, for that matter) who want to hurt a peer choose nonphysical means to do so, perhaps in part due to fewer formal rules or sanctions existing against relational forms of aggression. However, recent research suggests that cyber-bullying, rumor-spreading, rejection, and ostracism are perceived as being just as personally distressing, if not more distressing, to experience (Kowalski, Limber, & Agatston, 2008; Williams & Nida, this volume).

WHAT IS “A” OR “THE” SOCIAL PSYCHOLOGICAL PERSPECTIVE?

Social psychology, according to the classic definition articulated in Allport (1985), is the study of how one person's thoughts, feelings, and behavior are influenced by the imagined or actual presence of others. Obviously such a broad definition covers a vast amount of territory, and it is perhaps both a strength and a weakness of the field that social psychological theories can rightfully and usefully be applied to virtually every aspect of human behavior. The strength lies in its utility and capacity to explain so many phenomena, but that strength carries with it the weakness of fragmentation: Subareas develop with their own specialized methodologies, vocabularies, and invisible colleges of researchers who talk among themselves but not so often with researchers from other subareas.

A telling if light-hearted example of this fragmentation can be seen in the results of an informal poll once circulated on the Society for Personality and Social Psychology listserv asking members to nominate their “favorite social psychological theory.” The (admittedly unscientific) poll revealed that 37 different theories were nominated by 69 SPSP members, with no theory receiving more than 10 votes! (The winner, if you are curious, was Terror Management Theory.) It is thus not surprising that social psychology has been criticized, and fairly so, as a field in search of a paradigm.

Kuhn's (1962) well-known treatise on the philosophy of science argues that progress in a scientific field follows three distinct stages: *prescience*, which occurs early in a discipline and is characterized by discrete research enterprises lacking a central paradigm; *normal science*, which occurs when a central paradigm has been developed and researchers attempt to refine or expand it; and *revolutionary science*, which occurs when anomalous findings accumulate, forcing researchers to change the dominant paradigm.

Psychology in general, including social psychology, would likely be classified as a prescience according to Kuhn's definitions. We currently lack a single central paradigm; instead, the history of social psychology can be described as a succession of topical interest areas and theories that come into and fall out of fashion. This state of affairs reached its peak during the crisis in social psychology in the 1960s and 1970s, leading Ring to publish a withering critique of the field in which he argued that social psychology gives the impression of a “sprawling, disjointed realm of activity where the movement is primarily outward, not upward”

(Ring, 1967, p. 119) and is “a field of many frontiersmen, but few settlers” (p. 120).

Social psychology has made substantial and gratifying progress since the crisis, but we have yet to arrive at a unified paradigm. As a result, it would be misspeaking to offer *the* social psychological perspective on a given topic. Rather, it would be more accurate to talk of a smaller number of broad theoretical approaches that have become especially influential within the discipline and that offer considerable promise as a way in which to study and understand a given phenomenon. Within social psychology, three of the broad paradigms currently guiding much theory and research include social cognition, evolutionary psychology, and neuroscience. In the sections that follow, I will describe briefly these paradigms and propose how they might fruitfully be applied to research on bullying and peer victimization. I should stress that these are not the *only* or perhaps not even the *best* social psychological perspectives for understanding bullying and peer victimization; there are many other social psychological theories I could have chosen to highlight here (social comparison theory, for example, or any of the theories that emphasize ingroup/outgroup distinctions, such as social identity theory). I chose these three primarily because they are more global in scope, and many of the more specific theories within social psychology can be subsumed under them.

SOCIAL COGNITION

Social cognition became the predominant paradigm in social psychology in the 1980s and remains the most influential perspective operating today. However, the notion of the individual as a social thinker has always influenced theory and research in the field. As Fiske and Taylor (2008) describe, the “social thinker” in social psychology was historically portrayed in succession as (a) a consistency seeker (attitude and cognitive dissonance research); (b) a naïve scientist (attribution research); (c) a cognitive miser (research on heuristics); (d) a motivated tactician (dual-process models); and (e) an activated actor (research on implicit associations and prejudice). The later models incorporated elements of preceding models but added substantially to them in terms of methodological and theoretical sophistication and complexity. The current view of humans as activated actors, for example, argues that cues in the social environment trigger peoples’ social concepts, with or without awareness, and these concepts

cue other related concepts, evaluations, affect, motivations, and behavior in a process of spreading activation (Fiske & Taylor, 2008).

Inherent in research and theory involving social cognition is the assumption that thinking about other people involves different processes than thinking about objects. If it did not, we would not need a separate field of social cognition and instead could rely on purely cognitive psychology. There are several reasons why social cognition is a special case of cognition, all essentially tapping into the idea of meta-awareness or the theory of mind: When we think about a given target person, we realize that the target is *also* a causal agent who is thinking about *us*, and our motivations and feelings about the target influence the way we want to present ourselves to the target as well as how we interpret the behaviors of the target (Fiske & Taylor, 2008). In other words, our thoughts about another person are much more complicated than our thoughts about a shoe, because we know the essence of the shoe will not change as a function of what we are thinking about it, but the same is not true of our thoughts about others.

Of all the theoretical perspectives within social psychology, social cognition has been applied the most often and with the greatest success to understanding problems of peer aggression. The best example of this application is Dodge's social information processing model (Crick & Dodge, 1994; Dodge, 1986). This model posits that children's behavioral responses in a social situation are a function of the sequential (a) encoding of internal and external cues; (b) interpreting the cues; (c) clarifying and selecting a response goal; (d) response access or construction; (e) deciding on a response; and (f) enacting the behavior (Crick & Dodge, 1994). Children's biological capabilities (temperament, personality), along with a database of stored memories, social schemas, norms, and social knowledge, influence what occurs at each step in this process. In a reciprocal fashion, children's social information processing and behavior can in turn affect the stored database of memories, schemas, and norms.

The social information processing model is comprehensive and has sparked a great deal of relevant research documenting that both aggressors and victims process social information in a biased manner (e.g., Lee & Hoaken, 2007; MacBrayer, Milich, & Hundley, 2003; Schultz, Izard, & Ackerman, 2000; and Schwartz et al., 1998). For example, a *hostile attribution bias* has been consistently demonstrated where a child predisposed to be aggressive may interpret objectively ambiguous behavior given off by a peer as being hostile in intent and therefore behave angrily toward the peer.

The area of social cognition attracting the most attention these days is the distinction between *automatic* and *controlled* processes (Blair & Banaji, 1996; for a discussion of this distinction as it applies to aggression specifically, see Berkowitz, 2008). This has produced a concomitant emphasis on methodologies that permit the measurement of automatic responses, such as priming methodologies and the Implicit Association Test (IAT) (see Fazio & Olson, 2003, for a review of these implicit measures). These methodologies allow the assessment of the extent to which a given construct is chronically accessible in a manner that is relatively devoid of demand characteristics or self-presentational concerns, which is an important benefit when dealing with behaviors as socially undesirable as bullying or being victimized.

For example, in the IAT, participants' reaction times are measured as they categorize various stimulus words as (a) being either evaluatively positive or negative; (b) either belonging to the target category or not (e.g., Black vs. White); and (c) whether the stimulus word belongs to a given pairing of evaluative and target category (e.g., "positive or White" vs. "negative or Black"). The measure of critical interest in the IAT is the difference in reaction time as people categorize congruent versus incongruent pairings (Greenwald, McGhee, & Schwartz, 1998). For example, most Americans find it easier to decide that a given word is "positive or White" versus "negative or Black" than to decide if a given word is "positive or Black" versus "negative or White," a finding that has been interpreted as evidence for implicit bias against Blacks (Brauer, Wasel, & Niedenthal, 2000; Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002).

The automatic/controlled distinction can also be applied to understanding children's responses to aggression by their peers. For example, in a study described in greater detail in the Rosen, Milich, and Harris chapter in this volume, we demonstrated that children with greater histories of experiencing peer victimization also scored higher on a victimization version of the IAT (i.e., they found it easier to associate themselves with victim-related words than nonvictim words; Rosen, Milich, & Harris, 2007).

This is only one example of relevant work in peer victimization taking a social cognition perspective, and it should be obvious that there are any number of other fruitful avenues to explore in identifying the thought processes that mediate children's decisions to engage in peer aggression as well as their reactions to being aggressed upon by others. It is more difficult to think of limitations to a social cognition approach,

although one possible drawback is that social cognition research tends to generate studies that emphasize running participants one at a time on computer-administered tasks and measures. As I discuss in more detail later, such an exclusive focus on individual cognitive responses can lead to a regrettable, and entirely avoidable, neglect of interpersonal behaviors that are arguably the processes and outcomes of greatest interest.

EVOLUTIONARY PSYCHOLOGY

As evolutionary theory is the predominant paradigm in biology for explaining animal behavior, it is perhaps surprising that it has taken evolutionary psychology as long as it has to assume a major role in explaining human social behavior (Webster, 2007). The tenets of evolutionary psychology are simple and rest on the basic proposition that the human brain, and consequently behavior, is the product of natural selection (Workman & Reader, 2008). In other words, those traits and behaviors that facilitate human survival and, in particular, reproductive success will be reinforced through natural selection.

Given the importance of reproductive success to evolutionary theories, it is only natural that human mating choices and sexual behavior have attracted the greatest amount of attention from evolutionary psychologists. Sexual strategies theory (Buss & Schmitt, 1993) is perhaps the leading theory in this area and argues convincingly that sex differences in individuals' preferences for short-term and long-term matings as well as the features desired in a sexual partner can be accounted for in part by differences in parental investment required by human males and females. In other words, the biological fact that men have greater opportunities to reproduce than do women, and women must devote more physical resources to bearing and raising a child than men, may be responsible for sex differences in the characteristics people deem important in choosing a mate and their strategies in pursuing reproductive opportunities.

In addition to human sexual/dating behavior, evolutionary psychology has been used with considerable success to explain such fundamental topics in social psychology as helping behavior (or lack thereof), prejudice and stereotyping, impression formation, and culture (Schaller, Simpson, & Kenrick, 2006). Most relevant to the present volume is the large literature on the evolutionary roots of aggressive and criminal behavior (Barber, 2008; Buss & Duntley, 2006; Rodkin, Hawley, & Little,

2007). This literature essentially makes the argument that, for most of humankind's evolutionary history, aggression has been an adaptive trait: Those early humans who were the most aggressive in terms of seeking out and protecting their own resources and kin were more likely to survive and reproduce.

The hallmark of an evolutionary psychology approach to understanding a phenomenon is that it forces a focus on *why* a given behavior is widespread. While it is important not to commit the naturalistic fallacy—that is, assuming that because a behavior exists, it is desirable and *should* exist—an evolutionary perspective to peer victimization can be helpful because it requires researchers to ask what adaptive functions are being served by the behavior, and the answers to these questions can guide practitioners in designing interventions for dealing with aggression. For example, Vaughn and Santos (2007) argue that aggression can be construed as an adaptive solution to a wide range of environmental challenges humans have faced throughout their evolutionary history and that research would be better served to differentiate between *successful aggression*, which will be associated with positive outcomes and life competence, and *unsuccessful aggression*, which will be associated with negative outcomes. In short, eliminating peer aggression entirely may be both an unrealistic and perhaps even counterproductive goal, as some studies suggest that aggression is associated with greater popularity among adolescents (Prinstein & Cillessen, 2003). Rather, intervention goals may be better directed toward limiting the damage caused by aggressive acts.

Evolutionary psychology thus provides a unifying framework and theoretical basis for viewing a wide range of behavior. However, the evolutionary approach to understanding social behavior has also attracted its share of criticism, including claims that evolutionary psychology leads to hypotheses that are nonfalsifiable (Gannon, 2002). Moreover, because the time scale for natural selection is measured over generations, if not thousands of years, causal inferences of the sort we are used to in experimental laboratory studies are hard to come by. Finally, an evolutionary perspective generally does not provide a basis for making the detailed kinds of individual-level predictions we ideally would like to be able to make from a practical standpoint, that is, trying to identify which children will victimize which other particular children in what specific contexts. In sum, as Benenson argues in her chapter in this volume, it may be that the most helpful contribution an evolutionary perspective can make to understanding bullying and peer victimization is the suggestion

that we consider the possible functions served when children act aggressively and that we view aggression as typically displayed in childhood as normative, rather than pathological.

SOCIAL NEUROSCIENCE

Perhaps the subdiscipline of psychology enjoying the most rapid growth and “buzz” these days is social neuroscience. As a crude measure of the explosion of interest, I compared the number of hits on the PsycINFO database for the term *neuroscience* across various years. For the year 2000, this resulted in 2,439 hits. This increased to 5,252 for the year 2007, and for the first nine months of 2008 alone, *neuroscience* yielded an astonishing 12,609 hits! A search for *social neuroscience* specifically resulted in a similar dramatic increase, from a grand total of 9 hits in the year 2000 to 156 in 2007.

Social neuroscience, broadly defined, is devoted to “understanding the neural, hormonal, and immunological processes giving rise to and resulting from social psychological processes and behaviors” (Harmon-Jones & Devine, 2003, p. 590). The rise of social neuroscience is in large part due to recent developments in noninvasive means of locating and identifying neural and physiological activity, including functional magnetic resonance imaging (fMRI), positron emission tomography, electroencephalogram, electromyography, hormone assays, and measurement of peripheral nervous system activity (pupil response, eyeblink, respiration, heart rate, and skin conductance levels).

A major focus of neuroscience in general and social neuroscience in particular is *brain localization*, that is, identifying the regions and pathways of the brain involved in specific traits and behaviors. For example, a recent meta-analysis concludes that the amygdala is activated while processing emotional stimuli, and this is particularly true for fear and disgust stimuli (Costafreda, Brammer, David, & Fu, 2008). And as will be described in detail in a later chapter, with respect to relational aggression more specifically, Naomi Eisenberger and her colleagues have identified specific limbic and front regions implicated in the neural processing of social exclusion.

A second major focus of social neuroscience research is to identify how hormones interact with features of the environment (particularly stress) to affect immunological functioning and health outcomes. Cortisol has attracted the most research attention, as it is a hormone that

plays a major role in the regulation of the fight-or-flight response and immune system activity (Hazler, Carney, & Granger, 2006). For example, Vaillancourt et al. (2008) have shown a significant relation between victimization history and cortisol levels, controlling for age, depression, and anxiety, which may diminish victimized children's ability to cope with subsequent stress.

While considerable research has been conducted on the neuroscientific basis of conduct disorder and antisocial behavior (e.g., Blair, 2002; Huebner et al., 2008; Raine, 2002), neuroscience theory and methods have only very recently begun to be applied to bullying and peer victimization specifically (Hazler et al., 2006). No doubt this is due in large part to difficulties in enrolling child participants in neuroscience studies. (Many children—and/or their parents—are reluctant to agree to being placed inside an fMRI magnet, say, or providing the multiple daily saliva samples required for cortisol assays).

Thus, the research agenda for analyzing bullying and peer victimization from a neuroscience perspective is wide open (Hazler et al., 2006), and one of my hopes for this volume is that it will encourage researchers interested in these topics to explore neuroscience methods. At the same time, valid questions can and have been raised about the limitations inherent in a neuroscience approach to understanding interpersonal behavior. A dyadic behavior like bullying or peer victimization may involve *emergent properties*, that is, properties that arise from the interaction of component processes that are not reducible to the components individually (Willingham & Dunn, 2003). This is ultimately an empirical question, but the chapters included here arguing for the necessity to take environmental and situational factors into account in predicting peer victimization (Kochenderfer-Ladd et al.; Hodges et al.; Espelage & Swearer; this volume) suggest strongly that focusing *only* on what goes on inside the brain will leave us with an incomplete picture.

However, the converse of this statement is also true: Focusing only on outward behavior without attending to the cognitive and physiological processes attending that behavior will *also* leave us with an incomplete picture. For example, Scarpa and Raine (2007) argue convincingly that the incidence of violence is greatest when individuals possess both psychosocial risk factors as well as certain biological risk factors (e.g., autonomic underarousal and prefrontal deficits). In sum, understanding what neurological features are associated with bullying, peer victimization, and aggression may help substantially in identifying those individuals at

greatest risk for poor outcomes, thus improving practitioners' ability to target intervention efforts more effectively.

SLOUCHING TOWARD A UNIFIED PARADIGM FOR SOCIAL PSYCHOLOGY?

While each of the major theoretical perspectives described above has generated productive lines of research, there is also the promise and potential for these approaches to be integrated into one comprehensive model or system for analyzing human behavior, a new field that can be termed *evolutionary cognitive neuroscience* (Krill, Platek, Goetz, & Schackelford, 2007), or if we want to be truly comprehensive, *evolutionary social cognitive neuroscience*. As Cacioppo, Berntson, Sheridan, and McClintock (2000) argued, “[S]ocial and biological approaches to human behavior have traditionally been contrasted as if the two were antagonistic or mutually exclusive” (p. 829), but they go on to note that this “abyss between biological and social levels of organization is a human construction” (p. 830)—and it is an abyss that researchers must bridge if we are to achieve a complete understanding of human social behavior.

Fortunately, the past few decades have produced gratifying progress in two major domains that allow for an integration of these approaches, namely: (a) methodological advances that allow social behavior to be assessed at a biological level (including functional brain imaging and neurochemical analyses), and (b) statistical advances in analytic techniques such as structural equation modeling and multilevel modeling that permit a more comprehensive analysis of mediational and moderation models of complex behavioral pathways operating at different levels of specificity.

The result is that we now have the methodological and statistical tools that are sophisticated enough to allow us to document the reciprocal effects among neural and social processes. We may in fact—at some point in the not-too-distant future—achieve the unified paradigm for understanding human social behavior that has eluded researchers in psychology thus far. It is important to note that a unified psychology does not mean agreeing on a single methodology or narrow theoretical approach; rather, it refers ideally to the “multiparadigmatic, multidisciplinary, and integrated study of psychological phenomena through converging operations” (Sternberg & Grigorenko, 2001, p. 1069). And even if we are not quite at that point in the field today, the basic message that a complete

understanding of a phenomenon requires looking at it on multiple levels is a theme that resonates clearly in the chapters in this volume.

USING SOCIAL PSYCHOLOGICAL THEORIES AND FINDINGS TO DESIGN OR IMPROVE INTERVENTIONS

No chapter on the benefits of social psychological theory is complete without hauling out Lewin's (1952) classic adage that "there is nothing more practical than a good theory" (p. 169). And perhaps, ultimately, one of the most beneficial aspects of the chapters in this volume is that they offer possible avenues for researchers, clinicians, and educators to create or modify existing interventions aimed at reducing peer bullying and victimization. Such an application is both desired and needed, given the significant increase in public attention devoted to school safety issues and antibullying programs in recent years.

Formal research aimed toward designing and evaluating antibullying interventions began largely with Olweus's influential bullying prevention program (e.g., Olweus, 1978, 1993), which is the first to have been implemented on a large scale and systematically evaluated (Smith, Schneider, Smith, & Ananiadou, 2004). This program stresses the importance of intervening at all levels, from individual to system-wide, through recruiting the cooperation of all members of the school community (teachers, students, parents) and communicating a clear and consistent message that bullying will be (a) detected and (b) not tolerated. Aspects of the curriculum target attitude change among students and the development of conflict resolution skills; individualized interventions also target children known to be involved in bullying incidents as either perpetrator or victim. While other antibullying programs exist, they tend to adopt most of the key features of the Olweus program.

While the emphasis on taking the school and home environment into account when carrying out an antibullying intervention is a good thing, as attested by many of the chapters in this volume, it is also clear that existing interventions are not as effective as would be desired. Two meta-analyses have been published evaluating the outcomes of antibullying programs (Merrell, Gueldner, Ross, & Isava, 2008; Smith et al., 2004), and their conclusions were somewhat bleak. For example, Smith et al. (2004) noted that effects of the interventions "fell almost exclusively in the categories of small, negligible, and negative" (p. 550). Merrell et al. (2008) concurred, arguing that the majority of effects obtained

were too weak to be considered meaningful or clinically important. Both meta-analyses further noted fundamental weaknesses with the design and methodologies of much of this research: (a) a lack of randomization and true experimental designs; (b) great variability, and in some cases questionable validity, in the outcome measures being assessed across studies; and (c) variability in the fidelity of the implementation of the intervention.

Design issues for evaluation studies of antibullying interventions can be easily addressed—well, perhaps not easily, but with adequate resources and access to school systems and attention to principles of sound experimental design. However, I would argue that the content and focus of potential intervention programs themselves also need to be addressed to take into account the findings of basic research on bullying and peer victimization as documented in these chapters. For example, at least three of the chapters in this volume argue convincingly for the crucial role played by emotion regulation in predicting peer victimization, on both the part of the victim and the aggressor. Interventions that therefore focus, for example, on teaching potential victims cold, rational decision-making processes (e.g., social skills curricula that emphasize generating and choosing among response options) may not reflect the reality of children so overwhelmed by the hot emotions of the moment that they are unable to think rationally at all. As another example, without knowledge of the neuroscience literature, a clinician might dismiss the recommendation that ostracized or rejected children be given a Tylenol to help them feel better as merely dabbling with the placebo effect—but the research described by DeWall in his chapter in this volume suggests that, given the shared brain pathways for physical and social pain, physical pain relievers should in fact be explored as an effective treatment for the pain of rejection.

Outline of the Book

This volume contains chapters by many of the leading social, developmental, and counseling psychologists dedicated to understanding how, when, and why children and adults are cruel to their peers. The chapters of this book fall into five major sections. The first section is this introduction. Section 2 consists of three chapters that offer broad theoretical perspectives for approaching the problem of peer victimization and bullying. Chapter 2, by Becky Kochenderfer-Ladd, Gary Ladd, and Karen Kochel, focuses on the importance of taking both child and environment

variables into account in predicting which children are likely to be victimized. In chapter 3, Carrie Masten and Naomi Eisenberger offer a comprehensive overview of recent advances in the neuroscience literature on understanding the brain areas implicated in responding to social rejection. Chapter 4 by Paul Rosen, Richard Milich, and myself, offers a new model of implicit social cognitive processing among victimized children that highlights the role of the *victim schema* created and held by repeatedly victimized children, and we describe the results of a longitudinal study supporting the causal role of implicit victim schemas and emotion dysregulation in contributing to subsequent victimization.

The third section of the volume contains more empirical reviews of different aspects of the literature surrounding bullying and peer victimization. In chapter 5, Lauri Jensen-Campbell, Jennifer Knack, Amy Waldrup, and Marie Ramirez concentrate on the victim side of the bully/victim dyad, examining in particular the role of personality and effortful control processes in predicting victimization. Ernest Hodges, Kätlin Peets, and Christina Salmivalli in chapter 6 examine bullying through the lens of the child x environment perspective articulated in the Kochenderfer-Ladd et al. chapter. They provide convincing data that an important percentage of the variance in bully-victim encounters is accounted for by the unique bully/victim pairing involved and that, therefore, prediction will be best served by considering characteristics of the aggressor as well as the situation (defined as targets of aggression). In chapter 7, Dorothy Espelage and Susan Swearer expand their well-known body of research delineating a social-ecological view of bullying by reporting the results of an impressive large-scale study of youth that demonstrates the importance of taking neighborhood/school level variables into account. The final chapter in this section by Joyce Benenson (chapter 8) analyzes adult and child sex differences in aggression from an evolutionary perspective and argues that peer aggression may be fruitfully understood as an adaptive response to the distinct evolutionary goals faced by males and females.

The fourth section of this volume concerns aggression that is not physical but rather relational in nature, including rejection and ostracism. In chapter 9, C. Nathan DeWall describes recent advances in neuroscience research showing that social pain is perceived in the brain in the same way, and utilizing the same pathways, as is physical pain. Kristin Sommer and Daniel Benkendorf take a more social cognition approach in presenting an attachment regulation perspective on peer rejection in chapter 10. In chapter 11, Will Crescioni and Roy Baumeister review

the lengthy and impressive body of research documenting the diverse consequences of rejection, including the role of rejection in causing aggression. Finally, in chapter 12, Kip Williams and Steve Nida offer convincing, and sobering, evidence that ostracism may be perceived by its targets as just as distressing, if not more so, than physical bullying—a conclusion that serves as a necessary caution for educators and clinicians, who tend to focus their prevention efforts on physical bullying rather than the much less visible pain of ostracism.

The fifth and concluding section of the book considers victimization in the broader peer context. In chapter 13, Jaana Juvonen and Adriana Galván propose that a major function of bullying is to punish deviance and enforce a peer group's norms, and these attempts are often successful because bystanders are (understandably) reluctant to risk incurring the wrath of the aggressors and so do not challenge the bully's actions. The remaining two chapters argue for the wisdom of adopting a social network analysis approach to understanding peer aggression, from two slightly different perspectives. Noel Card and David Schwartz first describe the benefits of analyzing peer victimization and bullying from multiple levels (individual, dyadic, peer subgroups, and larger peer groups). Rich Gilman, David Schonfeld, and Inga Carboni then focus more on the phenomenon of social isolation, providing first an excellent explication of the basic strategy underlying social network analysis and then discussing how a social network approach might inform interventions aimed at helping isolated youth.

CLOSING COMMENTS: PROMISES AND PITFALLS OF A SOCIAL PSYCHOLOGICAL APPROACH TO PEER VICTIMIZATION

One theme I hope is evident through the (necessarily brief) description of the chapters in this volume, and which should become more evident in the chapters themselves, is the rich potential represented in taking a social psychological approach to understanding bullying, rejection, and peer victimization. The chapters included here adopt a variety of social psychological perspectives operating on a variety of levels, ranging from the detailed specificity of identifying neural pathways and brain regions evident in the neuroscience chapters to a much broader scope that considers humankind's evolutionary history. But the common thread across the chapters is the emphasis on *theory*, with a corresponding emphasis on

mediating and moderating processes, as an organizing principle sparking the design of studies delving into the problems of peer aggression. This is a focus greatly needed, as past research on these issues has tended to rely heavily on descriptive and applied aims and methods. In other words, research to date on bullying, victimization, and peer rejection has given us a very good picture of who does the bullying, who is victimized, and the consequences of victimization. Unfortunately, our understanding of *why* bullying occurs and the mediating and moderating pathways of peer victimization is relatively impoverished. The great promise of a social psychological approach to behavior is thus an emphasis on understanding process and mediation within a theoretical framework, and it is this enriched theoretical understanding that should lead to more effective interventions and treatments.

Of course, a social psychological perspective on bullying, rejection, and peer victimization may be prone to some of the limitations of the field itself. One of the biggest of these pitfalls is social psychologists' overreliance on introductory psychology students as participants in their research, a problem that was sharply criticized by David Sears (1986) over 20 years ago and remains as problematic today. The reasons for using college students are obvious and compelling—they are a convenient and free source of abundant data—but the limitations of this reliance are equally obvious and compelling. Social psychological research on young adults can yield a large amount of useful data that can help in formulating theory, but an important step will be to validate the results obtained on college students against those obtained with younger children. In many cases, the processes identified in adult samples will undoubtedly generalize to younger samples, and for that reason, research on college students remains both useful and expedient. But in some cases the findings will not generalize, and we need to know what those cases are. For example, as Masten and Eisenberger note in their chapter, there are important structural differences between the brains of adolescents and the brains of adults, and these differences appear to have ramifications for how rejection is experienced and reacted to by children and adults. To put it another way, while it is difficult to construe the recent decline in federal funding for basic social psychological research positively, one definite benefit is that it encourages social psychologists to go beyond laboratory research on college students to addressing other age groups in real-world contexts.

A second pitfall in taking a social psychological approach to issues of bullying and peer victimization is that it—ironically—too often leads to

examining the thoughts and reactions of an individual person rather than interpersonal behavior occurring between two or more people, a regrettable feature given the interactional nature of peer aggression. This is not the fault of the field of social psychology itself, which is explicitly and proudly interpersonal in its scope and theoretical aims, but more a reflection of the methodologies that have become predominant in the field, methodologies that emphasize self-report and what is going on inside the head rather than what is going on between individuals.

My intention here is not to criticize those methodologies; as will become evident in reading the chapters in this book, the methodologies associated with social cognitive neuroscience are sophisticated and exciting and provide a means of glimpsing into the “black box” of the human brain to an extent previously undreamed of. Indeed, as Baumeister, Vohs, and Funder (2007) state in their delightfully if plaintively titled article, “Psychology as the Science of Self-Reports and Finger Movements: Whatever Happened to Actual Behavior?” there is nothing wrong with learning about inner process. And, as I hope I have made abundantly clear, progress in understanding bullying and peer victimization requires learning more about the inner processes going on in the bully/victim dyad. The point is that “behavior matters too” (Baumeister et al., 2007, p. 400). As a field, social psychology needs to move away from a view of human behavior that regards it almost exclusively as something “performed in a seated position, usually seated in front of a computer” where “finger movements, as in keystrokes and pencil marks, constitute the vast majority of human action” (Baumeister et al., 2007, p. 397).

The good news is that researchers interested in studying bullying, rejection, and peer victimization will by necessity involve themselves with “actual behavior” because the outcome of ultimate interest in these areas is aversive interpersonal behavior. So, in a way we have come full circle: Just as adopting the theories and methods of social psychology can advance research on peer victimization, choosing peer aggression as a topic of research can help return social psychology to its noble roots of explaining and predicting interpersonal behavior.

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Theoretical Perspectives

PART
II

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2

A Child and Environment Framework for Studying Risk for Peer Victimization

BECKY KOCHENDERFER-LADD, GARY W. LADD,
AND KAREN P. KOCHER

Researchers who study peer victimization often focus on features of the child (e.g., cognitive, behavioral, psychological) or facets of the child's environment (e.g., peers, family, school) when they investigate the potential causes of this social malady. These two investigative agendas suggest that investigators understand, at least implicitly, that both child factors and environmental factors play a role in peer victimization and in the way that victimization affects children's adjustment or development. Logic also suggests that peer victimization is not caused by child characteristics alone; the attributes that children possess or express are embedded in specific environmental contexts, and settings tend to vary in the extent to which they permit or are conducive to bullying or peer victimization. For these reasons, there is merit in considering child *and* environment models (which are sometimes termed "child *by* environment models") as theoretical frameworks for guiding research on peer victimization (e.g., hypothesis generation and testing) and for interpreting existing evidence (assessing the current state of knowledge, identifying areas in need of further investigation).

Simply stated, child and environment models posit that characteristics of the child and the child's environment operate in concert to cause peer victimization or to affect children's adjustment (see Coie et al., 1993; Ladd, 1989, 2003). Inherent in such models are assumptions

about (a) the locus of these factors (e.g., within the child, within the child's environment, or both), (b) the observable manifestations of such characteristics (e.g., a child's behavioral tendencies, such as impulsivity, aggression, passivity; differences in social environments, such as more versus less accepting peer groups), and (c) the way these factors combine or interact to determine children's risk for victimization (see Ladd, 2003, p. 86).

The latter of these three assumptions epitomizes the child and environment model. Although little research has been conducted that actually examines how child and context factors combine, or jointly affect (e.g., increase, decrease) children's risk for peer victimization, some research has been conducted that either, implicitly or explicitly, makes assumptions about how child-level and environmental factors relate to one another. For example, researchers who find that environmental factors, such as parenting styles, increase children's risk for victimization tend to assume that certain parent behaviors (e.g., maternal overprotectiveness; father negativity) affect vulnerability to peer victimization via associated social competence. That is, parenting styles either promote positive pro-social competencies in the child, or encourage the development of maladaptive behavioral tendencies, such as aggression or passivity. In turn, it is children's social behaviors that increase their risk for peer harassment. Thus, whether or not researchers actually measure children's social behaviors or skills (i.e., test a mediation model), both child and environmental factors are typically presumed to be determinants in such studies.

Because child and environment models are rarely articulated as such by researchers, this chapter begins by providing an overview of how existing research can be interpreted within such frameworks. Specifically, the basic assumptions underlying various types of child and environment models are presented along with examples of studies that have either implicitly or explicitly tested some of those assumptions. Then we present findings stemming from main effects perspectives (i.e., study either child or environmental factors, but not both in combination) and highlight how child and environment models may be useful in extending or innovating research on peer victimization.

CHILD AND ENVIRONMENT MODELS

While main effects models have driven most peer victimization research, even studies that examine just one determinant (e.g., child-level

factors) inherently make assumptions about the other (e.g., contextual factors). As an example, investigations of child-level correlates of peer victimization consistently find that aggression and withdrawal are risk factors for the emergence of victimization (e.g., Schwartz, 2000); implicit in such studies are assumptions about the school environment, such as the presence of bullies and opportunities for them to harass their victims without experiencing adverse consequences. In the following sections we describe the assumptions underlying four distinct child and environment models (e.g., continuity, additive, moderator, and mediator) and provide examples from the extant literature in which they are either implicitly, or explicitly, tested.

Continuity Models

Continuity models can be divided into two types: behavioral-continuity and environment-continuity. In each case, the main assumption is that only one set of factors is the primary precipitant of peer victimization, and that the role of the other is merely one of maintaining the original risk factor. For example, a behavioral-continuity model suggests that child-level risk factors, such as behavioral dispositions, are the primary cause of harassment. Investigators endorsing this prospective might argue that children enter into social environments with preexisting dispositions (e.g., genetic predispositions, temperament, or internal working models stemming from their attachment histories), such as aggressiveness, passivity, or hostile attribution biases, that orient them toward social contexts (i.e., poor peer relationships) or elicit hostile overtures (i.e., peer victimization), that perpetuate those dispositions (i.e., “cumulative continuity”; Caspi, Elder, & Bem, 1987, p. 308). An example of a behavior-continuity model can be culled from a study conducted by Olson (1992). Specifically, Olson (1992) found that preschoolers who directed unprovoked aggression toward age mates soon became victims of peers’ unprovoked aggression, and then they responded to their victimization with further aggression, thus perpetuating the cycle. As seen in this illustration, the role of the context is the degree to which peers created consequences that sustained children’s preexisting disposition to aggress by reinforcing their aggressive behaviors.

In contrast to a behavior-continuity model, an environmental-continuity model perspective argues that contextual factors are the primary determinant in the emergence of victimization. School-wide antibullying programs are often derived from this perspective as they tend to focus

on changing the school environment to stop bullying. The assumption underlying many of such programs is that by altering the context, such as establishing rules against bullying that are clear and consistently enforced and by fostering a caring, respectful environment, then bullying can be substantially reduced. Child-level factors are important only to the extent that they reinforce, or sustain, the environmental forces. In other words, from this perspective, particular contexts (e.g., school playgrounds, lunchrooms, buses) are inherently conducive to bullying behavior due to lack of supervision or permissive attitudes toward aggression; child-level characteristics, such as behavioral propensities, lead targets of aggression to reinforce aggressive children either by giving in to their demands, or fighting back in ways that invite further attacks—thereby maintaining a preexisting bullying climate.

Additive Models

In additive models, it is assumed that both child and environment factors make distinct, and independent, contributions to the emergence and chronicity of peer victimization. For example, it has been argued that aggression (child-level factors) and peer rejection (environment-level factor) both add to children's vulnerability for victimization beyond the risk presented by the other. Kochenderfer-Ladd (2003) provides such an example in which both aggression and low peer acceptance made distinct, independent predictive contributions to chronic peer victimization. Specifically, using regression analyses in which children's kindergarten aggression and peer acceptance scores were entered simultaneously in the equation, she found that both factors accounted for significant, nonshared variation in stability scores (i.e., whether children were bullied for 1, 2, 3, or 4 years) that was unaccounted for by the other.

Moderator Models

The central premise of a moderator model is that whether or not present risk-related factors or characteristics actually cause children to be bullied is *contingent* upon the presence or absence of other risk factors. Of all the child and environment models, this one is most likely to be construed as a child *by* environment model because the assumption is that neither child nor environmental factors alone are responsible for the emergence of peer victimization, but rather it is the interaction that determines the risk. In other words, particular combinations of child and

environmental factors are more or less conducive to peer victimization. For instance, it has been proposed that whether aggressive children are accepted by their peers or are at risk for victimization is dependent upon the social norms governing appropriate and acceptable behavior within their group (Henry et al., 2000; Wright, Giammarino, & Parad, 1986). More specifically, it has been suggested that aggressive children are more likely to experience victimization when participating in friendly or non-aggressive peer contexts but are less likely to become victims in contexts where aggressive behavior is normative (see DeRosier, Kupersmidt, & Patterson, 1994; Ladd & Bugress, 1999; Wright et al., 1986).

Additional examples of child by environment models can be found in studies that investigate the moderating effects of gender on behavioral risks for peer victimization. Despite the fact that sex is itself a child-level factor, investigators generally do not argue that sex of the child is itself a risk factor but rather contend that it is the fit, or interaction, between children's behavior and the peer norms of their cultural assignment (boys' group; girls' group). In other words, it is argued that boys and girls are socialized within two separate cultures—each characterized by distinct gender-typed norms guiding expected and accepted behaviors, attitudes, dress, and so on (see Maccoby, 1998). Consequently, behaviors such as shyness or social withdrawal may leave boys vulnerable to peer ridicule, yet such behaviors may not operate as risk factors in girls' groups where such behavior is more normative and acceptable.

Mediator Models

In mediator models, the links between distal child- or environment-level factors and peer victimization are mediated by other, more proximal, risk factors. These types of models, often designed to demonstrate cause-effect linkages, are becoming more common in the peer victimization literature. However, most mediation studies focus on the processes underlying the effects of peer victimization on children's adjustment, such as emotional reactivity, peer beliefs, and so forth, as opposed to risk for peer victimization.

Still, examples can be found of studies testing the assumptions of child and environment mediation models; most of which is research on the effects of family or parenting risk factors. Specifically, investigators tend to argue that family interactions and parenting styles are risk factors to the extent that they influence the development of socially inappropriate behaviors (e.g., aggression) or hinder the development of prosocial

or communicative skills. Thus, the implication is that environment factors, such as violence in the home, insecure attachment histories, and maternal overprotectiveness, indirectly affect children’s risk for peer victimization via the development of aggressive or socially withdrawn or anxious behavior.

In sum, we offer these child and environment models as a way of integrating what has largely been two separate literatures—one that focuses on child-level factors; the other on environmental or contextual factors. In the sections that follow, multiple features of the child (e.g., behavioral, emotional, cognitive) and facets of the child’s environment (e.g., family, peers, schools) are highlighted as factors that have received the most empirical support as precipitants of peer victimization. The child-and-environment model shown in Figure 2.1 is presented as a framework for organizing the remainder of this chapter. Specifically, child-level factors such as social behaviors, emotional reactivity, cognitions, and psychosocial vulnerability are illustrated in the top half of the panel whereas environmental factors, such as parenting practices, peer culture, and school environments are shown in the bottom half.

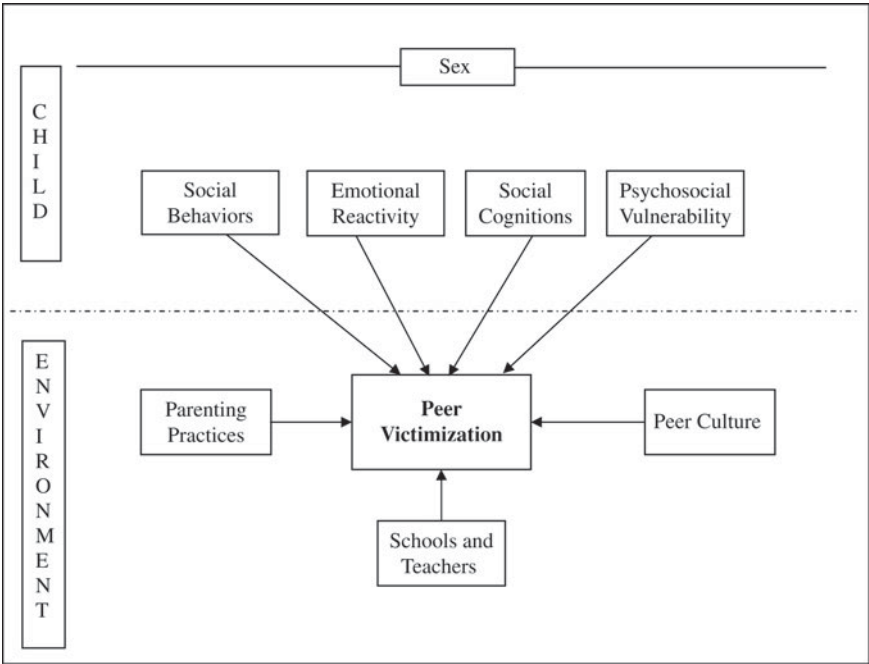


Figure 2.1 Sample child × environment model for studying risk for peer victimization.

CHILD-LEVEL FACTORS

There is a growing body of research devoted to identifying the child risk factors for peer victimization and rejection. The bulk of this literature can be divided into four primary lines of research: (1) behavior, especially aggressive and submissive behaviors; (2) emotional reactivity and regulation; (3) social cognitions, and (4) psychosocial vulnerability, including anxious-depressed vulnerability. Each of these areas is discussed in the sections that follow.

Before discussing the theoretical basis for, and empirical evidence in support of, these risk factors, it is important that we consider the role that children's sex plays in the emergence of bullying and related adjustment problems. As mentioned previously, sex is a unique variable in that, although it is clearly a characteristic of the child (i.e., a child-level factor), the rationales for hypothesizing and accounting for sex differences are sometimes based in assumptions about the distinct gender-typed peer norms within which boys and girls are socialized (i.e., environment-level factor). Thus, although sex is a child-level variable, its unique role is emphasized by its position overarching the other variables in Figure 2.1.

Sex of Child

Research on sex differences provides little evidence for the belief that boys are more likely to be victimized than girls; rather, established prevalence rates appear similar for both sexes (Charach, Pepler, & Ziegler, 1995; Hanish, Kochenderfer-Ladd, Fabes, Martin, & Denning, 2004; Kochenderfer-Ladd & Skinner, 2002; Perry, Hodges, & Egan, 2001; Underwood, 2003). Still, there is some evidence to suggest that boys and girls might be at risk for different *types* of victimization. For example, research tends to find that boys are more physically victimized than girls (Crick & Bigbee, 1998; Hanish et al., 2004; McNeilly-Choque, Hart, Robinson, Nelson, & Olsen, 1996). Evidence for sex differences for verbal or relational victimization is less consistent, with some studies showing similar rates for boys and girls (Hanish et al., 2004; Kochenderfer & Ladd, 1997), others indicating that boys are more likely to be victimized verbally or relationally (McNeilly-Choque et al., 1996), and still others suggesting that girls are more likely to be victimized via indirect, or social forms, of aggression (Crick & Bigbee, 1998). Thus, while differences may be detected, the findings are quite mixed.

Although prevalence rates may be similar, it is possible that boys and girls are targeted for bullying behavior for different reasons. That is, the risk factors associated with peer victimization may be different for boys than for girls. It is argued that boys and girls comprise two distinct cultural groups and are, thus, socialized differently (Maccoby, 1998). This “separate cultures” perspective presumes that children spend much of their time in sex-segregated groups (e.g., with their own sex) and learn the behaviors and interaction styles that are appropriate for their sex. Thus, children learn how to behave in ways that are “cool” or associated with popularity and high social status within their respective peer groups. For example, athletic ability, toughness, and social skills are all highly valued among boys, whereas physical appearance and social skills are valued for girls (see Ruble, Martin, & Berenbaum, 2006). Moreover, children who behave in more sex-typed ways are more likely to be accepted in their peer group, whereas those who act in gender atypical, or nonnormative, ways are at risk for ridicule, victimization, and rejection (Green, 1987; Kreiger, 2007; Maccoby, 1998; Martin, 1990; Thorne, 1993). When considering the precipitants of peer problems, therefore, it is important for researchers to consider the role that sex plays in the emergence of victimization and rejection.

Social Behavior Influences

The premise that victimized and rejected youth exhibit behaviors that provoke or reinforce their negative peer status has served as an impetus for investigations into the role of maladaptive behavioral propensities (i.e., aggression, withdrawal) in the prediction of poor peer relations. For example, researchers consistently find that aggression and—once children enter middle childhood—withdrawal are risk factors for victimization (e.g., Hodges, Boivin, Vitaro, & Bukowski, 1999; Schwartz, Dodge, & Coie, 1993). Although specific children’s social behaviors (e.g., aggression, social withdrawal) may be in response to victimization as opposed to a precipitant (Kochenderfer-Ladd, 2003), in most studies examining the causal priority between aggression and victimization, aggression predicts increases in peer victimization as opposed to the other way around (Bukowski & Sippola, 2001; Kochenderfer-Ladd, 2003). One such example is an observational study in which Olson (1992) found that preschoolers who direct unprovoked aggression toward age mates eventually found themselves on the receiving end of peers’ aggression.

Although they also responded aggressively to victimization, it could be argued that, in such cases, aggression was the precipitant.

Nevertheless, not all aggressive, passive, or withdrawn children are victimized. Thus, such findings may be expounded upon by examining the contexts in which specific social behaviors are more or less likely to lead to victimization. For example, aggressive children's social status within their peer groups may influence their level of risk for harassment, such that popular aggressive children may be less likely to be victimized than their rejected counterparts. Moreover, the socioeconomic or racial makeup of schools may moderate behavioral risk factors. It is likely that we will see such hypotheses being addressed in the literature in the near future.

Emotional Reactivity and Regulation

Emotional reactivity (how quickly and intensely individuals feel emotions) and regulation (individuals' ability to modify or control their emotions) have also been linked to poor peer relationships, including peer rejection and victimization (Eisenberg et al., 1993; Iyer, Kochenderfer-Ladd, Eisenberg, & Thompson, 2008; Kochenderfer-Ladd, 2004; Rubin, Coplan, Fox, & Calkins, 1995). Investigators find that these two components interact such that children who experience intense negative emotionality and have difficulty regulating those emotions display less socially competent behavior with peers (Eisenberg et al., 1993). Moreover, Schwartz, Proctor and Chien (2001) found that victimized children tend to fit this profile of high emotional reactivity coupled with difficulty regulating emotions. Furthermore, victims' emotional reactivity tends to be reinforcing to bullies as aggressive children enjoy children's emotional distress and find it rewarding (Perry, Williard, & Perry, 1990).

Specific emotion regulation skills have also been linked to the emergence of peer victimization. In particular, effortful control, the degree to which individuals are able to focus and shift their attention as needed and inhibit impulsive or inappropriate emotions and behaviors, is associated with victimization (Jensen-Campbell, Knack, Waldrup, & Ramirez, this volume). Children high in effortful control tend to be more socially competent and receive higher peer liking ratings (Eisenberg et al., 1993; McDowell, O'Neil, & Parke, 2000), whereas those low in effortful control are more likely to be victimized. For example, Iyer et al. (2008) found that low effortful control was associated with both concurrent and future (one year later) peer problems including victimization and low social acceptance.

In addition, evidence is accumulating that the specific forms of emotional responses are also significant predictors of victimization. In other words, it is not just that victimized children experience “debilitating emotional arousal” (e.g., Rubin, Bukowski, & Parker, 1998), but the *type* of reaction to peer provocation, such as anger, fear, and embarrassment appears to play a role in the emergence and stability of victimization. For example, two groups of victimized children have been identified—aggressive, argumentative and hot-tempered on the one hand; passive acquiescent and anxious on the other (Perry, Kusel, & Perry, 1988; Schwartz et al., 1993). In all likelihood the former victim is experiencing anger whereas the latter is experiencing debilitating fear. Support for this proposition can be found in a study conducted by Kochenderfer-Ladd (2004) in which she found that increases in peer victimization could be predicted by whether children are beset by anger, fear, or embarrassment. Specifically, anger was associated with increased risk for victimization due to a greater likelihood that such children would seek revenge. In contrast, fear and embarrassment were associated with decreases in peer victimization because such emotions motivated children to seek help from others and engage in conflict resolution strategies (i.e., amicably confront harassers; try to get along).

SOCIAL COGNITIVE INFLUENCES

Children’s cognitive functioning, including social information-processing, self-perceptions, and attributions, also contribute to poor peer relations. For example, there is some evidence that the tendency for youth to perceive peers’ intentions as hostile is predictive of aggressive-victim status (e.g., Schwartz et al., 1998); however, such deficits in social information-processing are not evident among withdrawn-rejected youth (see Rubin et al., 1998) or nonaggressive victims (see Perry et al., 2001). With respect to self-perceptions, evidence supports the notion that poor self-regard forecasts increases in victimization (e.g., Egan & Perry, 1998) and rejection (e.g., Salmivalli & Isaacs, 2005).

Although it is unlikely that attributions are themselves antecedents to victimization (because by their very nature attributions are made *after* an event has occurred to explain why the event happened), concurrent investigations indicate that critical self-referent attributions (i.e., self-blaming attributions) are correlated with victimization (Graham & Juvonen, 1998; Prinstein, Cheah, & Guyer, 2005). For instance, Graham

and Juvonen (1998, 2001) examined two attributional patterns: (a) characterological self-blame (CSB) that consists of causes based on internal, stable, and uncontrollable characteristics (e.g., because of “how I am”) and (b) behavioral self-blame (BSB) that involves internal, unstable, controllable causes (e.g., because of something “I did”). They found that victimized children were more likely to make both types of attributions compared to nonvictimized peers and that both CSB and BSB were associated with victims’ loneliness and anxiety.

Although perhaps not antecedents to victimization, children’s attributions may play a role in the *stability* of those experiences. For example, children who make benign attributions, such as “they are jealous of me,” or “we are different from each other,” may be more likely to respond adaptively than those who believe they have done something to deserve their peers’ abuse (e.g., “I did something stupid or mean”) or blame unflattering characteristics about themselves (e.g., “I’m not cool”). Thus, attributions may be important to the degree to which they influence how children cope with peer aggression. Although we are unaware of published studies that have examined this proposition, preliminary evidence appears to support these contentions. Specifically, Kochenderfer-Ladd (unpublished data) found that attributing victimization to other kids’ jealousy is associated with adaptive strategies, such as talking with teachers and friends, and trying problem-solving strategies. In contrast, children who blame themselves for their victimization, or indicate mutual dislike with their harassers, are less likely to involve parents and teachers, and more likely to engage in ineffective tactics, such as seeking revenge.

PSYCHOSOCIAL VULNERABILITY

During the past few decades, researchers have garnered evidence documenting the harmful effects of peer victimization on children’s psychosocial adjustment (Hawker & Boulton, 2000). Thus, while not disputing that adverse peer relationships often lead to psychological maladjustment, such as loneliness, anxiety, and depression (e.g., Boivin, Hymel, & Bukowski, 1995; Brendgen, Warner, Morin, & Vitaro, 2005; Ladd, Kochenderfer, & Coleman, 1997; Pederson, Vitaro, Barker, & Barge, 2007; Prinstein & Aikins, 2004), we retain our focus on the antecedents of peer victimization by presenting evidence indicating that psychological problems may also precede some children’s experiences of peer victimization.

Recent theory and empirical evidence offer support for the proposition that psychosocial problems, such as depression, precede interpersonal difficulties. For example, the contention that depressogenic symptoms directly affect youths' peer relations is compatible with recent process models of depression in which associated symptomatology, such as excessive irritability, ruminative thinking, extreme levels of support-seeking, and so forth, directly harm relationships (see Rudolph, Ladd, & Dinella, 2007). Specifically, Rudolph and colleagues (2007) propose that depressive symptoms, including lack of motivation, fatigue, negative affect, and social disengagement, may be interpreted by peers as disinterest in establishing and maintaining social ties, which may, in turn, thwart depressed children's interpersonal relations. This same team of researchers has also posited that depressed children's tendency to engage in negative self-disclosure at a rate disproportionate to their peers may stress interpersonal relationships.

Alternatively, researchers have argued that psychologically defenseless youth display symptoms that are annoying to other children (e.g., complaining, seeking reassurance; Coyne, 1976) or signal vulnerability (Perry et al., 2001) that, in turn, induce disliking and/or maltreatment by age mates. Nevertheless, such arguments are consistent with the view that depressive symptoms may precede children's social problems (i.e., peer group rejection) and/or maltreatment by age mates (e.g., Hodges, Malone, & Perry, 1997; Hodges & Perry, 1999; Little & Garber, 1995). That is, researchers have found that depressive symptoms are associated with increases in negative social experiences such as peer victimization (e.g., Snyder et al., 2003; Sweeting, Young, West, & Der, 2006) and peer rejection (Kochel & Ladd, 2008; Little & Garber, 1993). For example, an investigation conducted by Sweeting et al. (2006) revealed that, in adolescence, depressive symptoms predicted victimization. Similarly, in their study of adolescents, Little and Garber (1993) reported that depressive symptoms, combined with low levels of life stressors, predicted rejection 3 months later.

Although the processes by which depressive symptoms lead to victimization and rejection may still not be clear, studies show that bullies tend to exert dominance over vulnerable (e.g., isolated, fearful) victims to minimize the likelihood of retaliation (Veenstra et al., 2007). In all likelihood, it is a combination of perceptions of disinterest (e.g., negative perceptions of peers with aversive affective dispositions), annoyance with depressed youth, and anxious vulnerability, that lead bullies to view depressed children as suitable targets of their aggression.

ENVIRONMENT FACTORS

Investigators have also examined how environmental or contextual factors may contribute to the emergence and stability of the bullying phenomenon. We have organized this review of the literature into four broad areas: (a) the family and parent-child relationships as a context for learning social behaviors, (b) peer group culture and acceptance, (c) friendship quality and quantity, and (d) school and classroom environments.

Family, Parenting, and Parent-Child Relationships

Evidence from multiple lines of investigation have demonstrated a link between early family relationships and parenting practices and children's later involvement in bullying. It is generally argued that parenting styles, parent-child relations, and other family experiences bear on children's behavioral orientations, which in turn have the potential to shape children's peer experiences. For this chapter, we focus on three domains that have received the most research: (a) parent-child attachment relationships (Troy & Sroufe, 1987), (b) dimensions of parenting styles such as parental control and responsiveness (Finnegan, Hodges, & Perry, 1998), and (c) children's exposure to abusive family conditions (e.g., family systems perspective; Schwartz et al., 1993).

Caregiver-Child Attachment Styles

There is some longitudinal evidence that parent-child relationships characterized by insecure attachments (e.g., anxious/resistant attachment and avoidant) are predictive of victimization. Troy and Sroufe (1987) studied the emergence of bullying among a group of 4- and 5-year-old preschoolers whose attachment histories had been identified at 12 and 18 months; preschoolers with histories of anxious/resistant attachment with their caregivers were most likely to be victimized. However, they were only vulnerable to peer victimization when paired with playmates who had avoidant attachment histories; that is, they were not bullied by securely attached children or by other peers with anxious/resistant attachment histories. In contrast, preschoolers with anxious/avoidant attachment histories tended to be negative in their interactions with whomever they were paired—even securely attached age mates. Moreover, when paired with other preschoolers with similar anxious/avoidant attachment histories, they vacillated between being the victimizer and the victim.

It is argued that insecurely attached children come to school with internal working models derived from their attachment histories with caregivers (see Bowlby, 1973) which leave them either uncertain as to how peers will treat them or expecting to be treated poorly. In turn, such children display an anxious vulnerability around peers as well as a tendency to exhibit withdrawn behavior. In other words, the link between children's insecure attachments to caregivers and their vulnerability for peer victimization are believed to be mediated by the development of anxious or socially withdrawn behavior (see Rubin & Burgess, 2001).

Parenting Styles

Aspects of parenting styles, such as maternal overprotectiveness, overly warm or enmeshed mother-child interactions, parental control and coercion, as well as paternal rejection, have also been implicated in children's vulnerability to peer victimization (Bowers, Smith, & Binney, 1994; Finnegan et al., 1998; Ladd & Kochenderfer-Ladd, 1998; Olweus, 1993). However, the effects of parenting styles on children's risk for victimization tend to be moderated by gender. For example, for boys, maternal overprotectiveness and intense closeness (e.g., enmeshed) and paternal negativity and poor identification with the father are concurrently and predictively related to victimization. In contrast, for girls, maternal coercive behavior, emotional control, and lack of responsiveness tend to be associated with victimization (Finnegan et al., 1998; Ladd & Kochenderfer-Ladd, 1998; Rigby, 1993).

In general, it is argued that parenting behaviors that threaten boys' agentic or girls' communal skill development (e.g., lack of responsiveness) undermine children's abilities to engage in socially appropriate interactions (e.g., culturally accepted gender-role behavior; see Bugental & Goodnow, 1998; Finnegan et al., 1998; Hodges et al., 1999; Parke & Ladd, 1992; Perry et al., 1990, 1992; Schwartz, Dodge, Petit, & Bates, 1997). For instance, maternal overprotectiveness and poor identification with the father may impede the development of autonomy and independence valued in boys' peer groups (Finnegan et al., 1998; Ladd & Kochenderfer-Ladd, 1998), whereas maternal emotional control and lack of responsiveness may interfere with the development of intimate communication and connectedness skills characteristic of girls' relationships. In turn, such skill deficiencies or manifestations of inappropriate behavior or affect may increase children's risk for peer rejection or harassment.

Family Systems Perspectives

Evidence from a family systems perspective also links family characteristics to children's risk for victimization. For example, enmeshed or overly close and dependent family relationships may place children at risk for peer victimization by impeding the development of autonomy and self-defense competency (Bowers et al., 1994; Smith, Bowers, Binney, & Cowie, 1993). Alternatively, children may learn the role of aggressor or victim within aggressive, or violent, family home environments. For example, Schwartz and his colleagues (Schwartz et al., 1997) found that aggressive victimized boys tend to have family histories that included physical abuse, harsh restrictive disciplinary styles, and violence between adults living in the home. Duncan (1999) also reported that abusive family conditions are associated with vulnerability to peer victimization. However, it should be mentioned that such findings are limited to aggressive victims; that is, nonaggressive victims do not appear to come from abusive or violent homes (Schwartz et al., 1997).

Peer Culture

As peer victimization, by definition, occurs among children of similar ages, it is not surprising that researchers would look at characteristics of the peer group that may be associated with higher or lower levels of abusive peer interactions. By far the most common characteristics studied are children's status within their peer groups (Boivin, Hymel, & Hodges, 2001; Hanish & Guerra, 2000; Hodges & Perry, 1999; Kochenderfer-Ladd, 2003; Ladd, Kochenderfer, & Coleman, 1997; Perry et al., 1990), the quality or quantity of children's friends (Hodges et al., 1999; Ladd et al., 1997), and peers' roles in encouraging (e.g., assistants, reinforcers) or discouraging (e.g., defenders) bullying interactions (Olweus, 1991; Salmivalli, 1999, 2001).

Results from the studies cited in the preceding paragraph, as well as others, clearly indicate that being negatively regarded by the peer group and lacking supportive peer relationships contribute to children's vulnerability to victimization. For example, it has been argued that victimization is the means through which some peers convey their negative sentiments toward disliked or rejected children (Boivin et al., 2001). In fact, peer rejection has been identified as an especially vulnerable position in the peer group because even nonaggressive peers do not tend to sympathize with rejected children when they are victimized (Hodges & Perry, 1999). Moreover, dislike for a child may not only provoke bullies' desire to harm

the victim, but the victim's low status within the group raises little concern for retaliation either from the child or from the rest of the peer group (Perry et al., 1990).

In addition to low peer group acceptance, it is generally believed that victimized children lack reciprocated friendships. Consistent with the argument that friendlessness is a risk factor for victimization, studies have shown that having few or no friends predicts increases in victimization over time (Hodges et al., 1999; Kochenderfer & Ladd, 1997). Moreover, when victims do have friends, their friends tend to have similarly low social status within the peer group, or characteristics associated with low-quality friendships, such as being unable to provide protection from peer victimization or other forms of support (Hodges et al., 1999).

Lastly, researchers have hypothesized that classmates' responses to bullying may serve to either encourage or discourage future attacks. For example, Olweus (1991) has argued that several group mechanisms, such as social contagion, have the potential to perpetuate bullying. A social contagion perspective would suggest that peer group members follow the model of the central figure, in this case, the bully, and that the presence of a large number of peers would lead to a diffusion of responsibility such that individual children experience a decreased sense of accountability towards victims.

Support for this perspective comes from a study conducted by Salmivalli (2001) in which school children were asked to report on each classmate's and his or her own behavior in bullying situations. She found that 60%–70% of children fulfilled “pro-bullying” roles by acting as bullies, outsiders (e.g., watching, but doing nothing to intervene), or reinforcers (e.g., encouraging the bullies' behavior), whereas less than 20% of youth comprised the defender (e.g., taking sides with the victim) group. These data suggest that peer victimization, in some respects, can be construed as a group phenomenon. Furthermore, although empirical evidence attesting to the impact that “defenders” have on the incidence of bullying is presently lacking, social norm research (e.g., subjective norms, or what children think others think they should do, tend to predict behavior) would suggest that peer “defenders” do, in fact, have the potential to curtail bullying behavior (see Salmivalli, 1999; Salmivalli, Kaukiainen, & Voeten, 2005).

School and Classroom Contexts

Schools and classrooms vary in the amount of bullying reported by students; moreover, such differences, appear to be independent of school

and class size as well as the types of populations they serve (e.g., rural/urban; low/high SES; see Olweus, 1993, and Roland, 1998). Consequently, researchers have begun to explore school- and classroom-level factors that are associated with bullying behavior (Roland & Galloway, 2002). For example, Roland and Galloway found that general classroom management (i.e., competent teaching, monitoring of homework and behavior, and caring for students) is directly associated with lower levels of classroom bullying as well as indirectly related via features of the classroom structure, such as the informal relations among students (e.g., cohesiveness, support, friendships), concentration on school activities, and social norms (e.g., “Most pupils agree that it is right to help others who are being bullied” or “Most pupils agree that school work is important.”). Thus, by setting an antibullying tone in their classrooms and creating environments of care and respect, teachers can be especially influential in controlling the amount of peer-directed aggression (Henry et al., 2000).

Moreover, teachers’ influence is not limited to their classroom management strategies; they have an important role in directly intervening when bullying occurs. For example, Olweus (1991, 1993) describes characteristics of “bully friendly schools” that include: (a) low adult monitoring and supervision, (b) inconsistent and ineffective handling of bullying episodes, and (c) no serious consequences for bullying behavior. Thus, teachers are needed to vigilantly supervise students, especially at times and in areas prone to bullying, and respond promptly and consistently. For example, overly crowded hallways and unsupervised lavatories are a breeding ground for bullying behavior as they provide ample opportunities for undetected pushing, shoving, fighting, and destruction of others’ property (Olweus, 1991, 1993).

Moreover, inconsistent consequences, or no consequences, to bullying behavior not only conveys to victims that they are not safe in school, but it also sends messages to bullies that their behavior is condoned and will not be thwarted. Teachers report three main reasons for why they don’t always intervene: (a) they don’t believe it is necessary, (b) they don’t know what to do, or (c) they feel incompetent in their ability to stop such behavior (Yoon, 2004). For example, Yoon and Kerber (2003) found that teachers view verbal and physical aggression as more serious forms of victimization than social exclusion; thus, they are not likely to intervene when bullying takes a form other than verbal or physical aggression.

Moreover, teachers’ beliefs about bullying not only influence their willingness to intervene, but they also impact *how* they intervene (Craig, Henderson, & Murphy, 2000; Nicolaides, Toda, & Smith, 2002;

Yoon & Kerber, 2003). For instance, Kochenderfer-Ladd and Pelletier (2008) found that teachers who believed bullying would stop if children just stayed away from bullies, tended to advocate avoidance strategies, such as telling victims to “stay away from bullies.” Unfortunately, in their study, advocating avoidance not only increased incidents of peer victimization but also appeared to encourage revenge seeking. In other words, telling children to avoid bullies without providing a way to do so was not only ineffective but may have forced children to take matters into their own hands and fight back.

Such findings are consistent with arguments that when teachers’ intervention efforts are ineffective, their assistance may actually be problematic for victims. For example, Smith and Shu (2000) reported that confiding in a teacher led to more difficulties for a number of victims in their study. Apparently, it is not just lack of teacher intervention that raises children’s risk for school bullying, but ineffective handling of bullying incidents can also exacerbate such problems. This is especially problematic given that teachers tend to overestimate the effectiveness of their efforts to stop bullying (Limber, 2002; Yoon & Kerber, 2003).

Unfortunately, very little is actually known about the most effective ways of handling bullying; researchers tend to offer an array of suggestions, but the effectiveness of such strategies most likely depends upon the specifics of the situations. Nevertheless, it is contended that when teachers are trained to be more aware of bullying as it occurs, and to respond quickly, consistently, and effectively, bullying incidents can be significantly reduced (Olweus, 1991, 1994). Moreover, Kochenderfer-Ladd and Pelletier (2008) found that physically separating aggressors from their victims might offer a promising approach to handling classroom bullying. Specifically, they found that levels of bullying were lower in classrooms in which teachers reported separating students involved in aggressive exchanges. It is possible that separating students provides a cooling off period that reduces the likelihood of retaliatory aggression, or it may thwart bullies’ opportunities to harass their peers. Alternatively, active intervention in bullying, regardless of the strategy, may indicate a teachers’ rejection of such behavior. For instance, Henry et al. (2000) found that when teachers do not allow aggression in their classrooms and punish aggressors, rates of bullying can be reduced.

In sum, children’s environments clearly influence the amount of risk they have for being bullied. In particular, there is a growing body of evidence that characteristics of the family (e.g., enmeshed family relationships, harsh home environments) and parent-child relations

(e.g., insecure attachments, coercive parenting), aspects of the peer culture (e.g., status within the peer group, quantity/quality of friendships), and teachers' responses to bullying are associated with children's risk for peer victimization.

SUMMARY AND RECOMMENDATIONS FOR RESEARCHERS AND PRACTITIONERS

This chapter attests to the diversity of the research agendas that have been pursued during the past two decades and suggests that child and environment factors may interact in complex ways either to increase or decrease the occurrence of bullying. Given that past investigators have tended not to rely on child and environment models as a foundation for their research, studies are still needed in which investigators explicitly probe for child by environment interactions.

It is likely that investigations into the child and environment factors that are (a) most often implicated as precipitants of peer victimization, *and* (b) most closely associated (i.e., correlated) with one another would produce particularly meaningful discoveries with regard to child and environment factors that operate jointly to influence the onset and maintenance of peer victimization. To illustrate, as mentioned in earlier sections, researchers have shown that both child-level behaviors, such as aggression, and context-level factors, such as peer group rejection, are (a) predictive of peer victimization (e.g., Schwartz, Dodge, & Coie, 1993) and (b) closely associated with one another (Coie & Kupersmidt, 1983; Perry et al., 1988; Rubin et al., 1998). Moreover, not only are child behaviors and peer rejection precipitants of peer victimization, but researchers have shown that the interaction of aggressiveness and peer rejection is particularly problematic (Kochenderfer-Ladd, 2003). That is, not only are aggressive-rejected children more likely to be victimized than either aggressive-only or rejected-only children, but they are at greater risk for adjustment problems, such as loneliness (Schwartz, 2000; Schwartz et al., 2001). Child by environment models are now being proposed in which the social norms for aggression and withdrawal may moderate the degree to which such behaviors place children at risk for victimization (e.g., Henry et al., 2000).

Future research may also benefit from investigating child by environment models that investigate how social or cultural norms may moderate child-level risk factors. For example, it has been suggested that the

behavioral correlates of peer acceptance most likely vary as a function of the peer group norms (Boivin, Dodge, & Coie, 1995; Wright et al., 1986). However, to test such a proposition, studies are needed that compare multiple school contexts which vary in terms of the prevailing social or cultural norms, not only in regards to aggression and withdrawal, but perhaps also in domains such as (a) academic-focus (e.g., scholastic aptitude and studiousness are valued as opposed to being mocked), (b) attitudes toward bullying (e.g., normal part of growing up versus criminal behavior with serious consequences), and (c) gender normative behavior (e.g., tolerance of gender nonnormative behavior as opposed to enforcement of strict gender roles).

Similarly, prevention and intervention efforts would also benefit from utilizing child by environment models. For example, programs that integrate child-level components (e.g., social skills training and individualized interventions) with school-wide policies that promote antibullying attitudes and mutual respectful and tolerance of individual differences may prove more effective than either tactic alone. Such an approach may include programs designed to change teacher and parental attitudes about the harmlessness of bullying and alter the social norms that allow such behavior to persist.

Along these lines, prevention researchers may need to investigate how victims' characteristics (i.e., child factors) influence whether or not teachers will intervene. For example, if teachers believe that aggressive or provocative (e.g., annoying, peculiar) victims deserve to be treated poorly by their peers, they may respond in ways that either inadvertently or wittingly exacerbate those children's risk for future victimization. Moreover, it may not be enough to simply change teacher and parental accepting attitudes toward bullying; interventionists may also need to equip adults with the skills they need to intervene effectively on behalf of various types of victimized children. For example, emotionally reactive (e.g., hot-headed, quick to fight back) victims may need a different approach to dealing with bullies than passive (e.g., self-blaming, withdrawn) victims. Adults need to be armed with an arsenal of strategies that could be used to tackle the diverse situations that arise. That is, for some victims (e.g., aggressive, emotionally dysregulated), adults may need to alter their risky behavior or address emotion regulation problems, whereas other victims (e.g., smaller, weaker, reticent, gentler) may need more direct assistance in confronting the bullies and keeping them safe from harm.

In sum, peer victimization is a multifaceted problem that requires a multifaceted approach. Researchers and practitioners alike would

benefit considerably by being mindful of both child and environmental factors as they address bullying in their respective fields. By considering how child and contextual characteristics interact we will undoubtedly obtain a greater understanding of the precipitants of bullying behavior and the factors which sustain it. Moreover, by attending to aspects of both the individuals and their environment, it is likely that prevention and intervention programs would be more effective at reducing bullying and its harmful effects.

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3

Exploring the Experience of Social Rejection in Adults and Adolescents: A Social Cognitive Neuroscience Perspective

CARRIE L. MASTEN AND NAOMI I. EISENBERGER

Charlie's mom: Well maybe there's more to high school than being well-liked.

Charlie: Like what specifically?

Charlie's mom: [long pause] Nothing comes to mind.

Though the dialogue above comes from the movie, *Charlie Bartlett*—a story about a teenage boy trying to fit into a new high school—it could just as well have come from most households across the country. Being included and well-liked is a primary goal shared by most teenagers, and the thought of not being liked or being left out is often described as “the worst thing *ever!*” (i.e., dreaded and avoided at all costs). Not surprisingly, social psychologists have described this need to be included or need to belong as a fundamental human need shared by individuals of all ages that, when unsatisfied, can lead to a variety of negative consequences, such as poor health and compromised well-being (Baumeister & Leary, 1995). In fact, recent research has suggested that the need to belong is so fundamental that a lack of social connection, like a lack of other basic needs (e.g., food), can feel painful—an experience that has been termed *social pain* (Eisenberger & Lieberman, 2004, 2005; Eisenberger, Lieberman, & Williams, 2003; MacDonald & Leary, 2005). Given that the need to belong is so important and that a lack of belonging can lead to negative

psychological and even physical health consequences, it is important to understand a particular time period during which acceptance and rejection take on inflated importance, namely adolescence.

Extensive developmental research has demonstrated adolescence to be a time of increased importance of peer relationships, sensitivity to social rejection, and negative psychological outcomes associated with peer rejection. As children transition into adolescence, peer rejection becomes increasingly prevalent as exclusive cliques form, and isolating and ridiculing classmates becomes associated with perceived popularity (Juvonen, Graham, & Schuster, 2003). In addition, upon entering middle school, it is common to spend increased time with peers (Csikszentmihalyi & Larson, 1984) and to place greater value on peers' approval, advice, and opinions (Brown, 1990). Thus, negative feelings associated with peer rejection may be especially salient during this stage of development because of the importance that young adolescents place on maintaining peer relationships. Several studies have documented the negative effects of social exclusion by peers on psychological adjustment, including links with depression and anxiety (Graham, Bellmore, & Juvonen, 2003; Isaacs, Card, & Hodges, 2001; Rigby, 2000, 2003), and emotionality and social withdrawal (Abecassis, Hartup, Haselager, Sholte, & Lieshout, 2002). In addition, studies have shown that not only is peer rejection psychologically harmful, but it can result in adverse mental health and physical health outcomes that persist long-term across development (e.g., Lev-Wiesel, Nuttman-Shwartz, & Sternberg, 2006; Prinstein, Sheah, & Guyer, 2005; Rigby, 2000).

Based on the profound influence that peer relationships have during adolescence as well as the potentially long-lasting effects of these early social relationships, it is crucial to understand the mechanisms by which these relationships impact adolescents' social experiences in both positive and negative ways. We begin this chapter by suggesting that the emerging discipline of social cognitive neuroscience may help to further elucidate the mechanisms that underlie the unique social and emotional processes related to peer interactions during adolescence. In particular, functional magnetic resonance imaging (fMRI) provides the opportunity to observe the processes underlying peer interactions as they are occurring, rather than relying solely on retrospective reports or observer ratings that are vulnerable to bias. To bolster this claim, we will discuss the research that has already been done in this area. Specifically, we will review previous research that has examined the neural mechanisms underlying experiences of social exclusion among adults, and we will suggest several distinct brain

regions and interacting systems that deserve attention as we explore these processes among adolescents.

In order to relate these findings from adults to peer rejection processes among adolescents, we next detail the structural and functional brain differences between adults and adolescents and suggest potential implications of these differences. Moreover, we specifically outline theories that have been put forth regarding the interaction between the developing brains of adolescents and the social behavioral outcomes that are typically observed in research on peer relations. As part of this discussion we also discuss the handful of neuroimaging studies that have begun to examine issues related to peer interactions during adolescence. Finally, we suggest one additional area that we believe is important to examine as neuroimaging is implemented by peer relations researchers—we discuss the importance of considering not only adolescents' personal experiences with rejection, but also their frequent observation of other peers being rejected, as a common aspect of their daily lives. Here, we suggest that fMRI methods may be particularly useful in understanding how a socially threatening environment, in which peer rejection is common, may influence the way that adolescents experience and respond to peer rejection. The overarching goal of this chapter is to provide a solid argument for how social cognitive neuroscience can integrate with the field of peer relations during adolescence, and in so doing, move both fields forward.

HOW CAN NEUROIMAGING TECHNIQUES CONTRIBUTE TO THE FIELD OF ADOLESCENT PEER REJECTION?

Despite the known impact of peer rejection on neuropsychiatric health, research examining peer rejection among adolescents has focused almost exclusively on behavioral methods of analysis, leaving the mechanisms underlying adolescents' individual, subjective experiences unexplored. For example, although extensive behavioral studies have explored patterns of peer rejection during adolescence, survey data and observational techniques are only able to tap emotional and behavioral *outcomes* of experiences with peer rejection, which represent a by-product of several underlying processes occurring in the moment of the experience. In contrast, neuroimaging techniques, such as fMRI, which permit the examination of these underlying processes at the time they are happening, can reveal distinct systems that contribute to the overall experience. By revealing on-line neural responses during the actual rejection experience,

fMRI can elucidate neural mechanisms related to distress and distress regulation that may explain increased salience of peer rejection during adolescence.

One of the specific processes related to peer rejection experiences that is likely to be further clarified by the use of fMRI techniques is the regulation of negative emotion. Several behavioral studies have indicated that one of the underlying contributors to individual differences in children's responses to peer rejection may be variation in emotion regulation ability. Moreover, research has demonstrated that differences in emotional competence, which is associated with greater emotion regulation ability, may help explain individual differences in psychiatric outcomes following peer rejection. Specifically, Asher and colleagues found that rejected children have difficulty managing their emotions, and rejected children with emotion regulation problems are at risk for later psychopathology development (Parker & Asher, 1987; Parkhurst & Asher, 1992). In addition, a later study found that, in order to successfully maintain friendships, children need multiple abilities: to work through conflict, display empathy, and understand how their own emotional reactions will impact their peers (Asher & Rose, 1997).

As a whole these findings suggest that inability to regulate negative affect successfully may underlie responses to rejection and contribute to psychopathological outcomes in some individuals. However, the mechanisms linking negative affect resulting from social rejection and subsequent individual differences in emotional responses cannot be comprehensively examined using the behavioral techniques most typically employed. While behavioral reporting and experiments may reveal individual differences in distress experiences resulting from an experience of rejection, it is impossible to know whether individual differences in subjective reports and observed behavioral outcomes reflect differences in the degree of affect initially elicited by the rejection episode, or differences in the degree to which negative affect is regulated. In other words, does an adolescent who is particularly sensitive to rejection simply react more strongly to the experience overall, or is his/her subjective experience one of greater distress due to an inability to regulate negative affect? Behavioral methods of analysis traditionally measure the "net" distress that an adolescent experiences as a result of peer rejection, conflating both the degree of initial emotional response that was subsequently tempered through emotional regulation, as well as the amount of regulation that occurred. In contrast, functional neuroimaging techniques allow us to make inferences about the initial emotions triggered by the rejection

experience, as well as the degree to which these emotions are regulated by examining differentiated neural activity in affective (limbic) versus emotion regulatory neural regions (prefrontal cortex).

NEUROIMAGING RESEARCH EXAMINING SIMULATED SOCIAL EXCLUSION AMONG ADULTS

Although research is just beginning to explore processes and experiences related to peer interactions among adolescents, a series of studies with adults has examined individuals' responses to social exclusion, providing clues as to the underlying neural structures that support such negative interpersonal encounters. In the first of these studies (Eisenberger, Lieberman, & Williams, 2003), participants were excluded by two supposed others while undergoing an fMRI scan, in order to identify the neural correlates of experiencing social exclusion. Thus, participants were led to believe that they were playing a virtual ball tossing game called Cyberball (Williams, Cheung, & Choi, 2000; Williams et al., 2002) via the internet with two other participants in other scanners; however, these other players were actually images controlled by a computer program. Participants first completed an "inclusion round" of Cyberball, in which the two other supposed players threw the ball back and forth with the participant throughout the game. Next, participants completed an "exclusion round," in which, after a brief period of inclusion, the two supposed players stopped throwing the ball to the participant for the remainder of the game. Immediately after the game, participants reported how much social distress they felt during the exclusion round (e.g., "I felt rejected," and "I felt invisible").

Results revealed a network of physical pain-related neural regions to be involved in the processing of distress related to social exclusion, including: (a) the dorsal anterior cingulate cortex (dACC), which has previously been associated with the unpleasantness or distressing aspects of physical pain (Foltz & White, 1962; Rainville, Duncan, Price, Carrier, & Bushnell, 1997; Sawamoto et al., 2000); (b) the insula, which has been linked to the processing of visceral sensations, (e.g., visceral pain), as well as negative affect (Aziz, Schnitzler, & Enck, 2000; Cechetto & Saper, 1987; Lane, Reiman, Ahern, Schwartz, & Davidson, 1997; Phan, Wager, Taylor, & Liberzon, 2004; Philips et al., 1997); and (c) the right ventral prefrontal cortex (RVPFC), which has been shown to be involved in the regulation of distress associated with physical pain and negative emotional experiences

more generally (Hariri, Bookheimer, & Mazziotta, 2000; Lieberman et al., 2004; Lieberman et al., 2007; Petrovic & Ingvar, 2002).

Three specific findings were particularly noteworthy in this study and have been subsequently replicated: (a) participants who reported more social distress during exclusion displayed more activity in the dACC, suggesting that dACC activity is an index of exclusion-related social distress; (b) participants with greater activity in the RVPFC during exclusion reported less social distress, supporting prior findings that the RVPFC plays a regulatory role in the experience of negative affect; and (c) activity in the dACC and RVPFC were negatively correlated, such that greater RVPFC activity was associated with less dACC activity. Moreover, the relationship between RVPFC activity and reported distress was fully mediated by changes in dACC activity, again suggesting that the RVPFC functions in a regulatory capacity, reducing the experience of distress by diminishing dACC activity.

Thus, neural responses to an episode of social exclusion recruited some of the same neural regions that are involved in the distress (dACC) and regulation (RVPFC) of physical pain experiences. These results are important for several reasons. First, they lend support to the notion that social connection is a fundamental human need by showing that a lack of social connection (in this case, through an episode of social rejection), like a lack of other basic needs, is experienced as painful. Second, these findings provide a framework for understanding the neural correlates of peer-related interactions in adolescents. Identifying the separate neural regions that are involved in the distress versus regulation of distress in response to exclusion (dACC vs. RVPFC) allows us to disentangle some of the processes that may contribute to the heightened salience of peer rejection and acceptance during adolescence. In other words, we can determine whether the heightened salience of peer rejection is due to greater inherent distress in response to rejection, reduced regulatory ability, or some combination of both based on observed patterns of neural activity in these regions.

In the next section we review the neural regions that respond to socially threatening situations more broadly, in order to provide a more comprehensive framework for understanding the neural underpinnings of peer-related rejection during adolescence. We first review regions that have been associated with affective responses to social threat (dACC, insula, subACC, amygdala) in adults and then review those that have been associated with regulating the negative affective responses to social threat (RVPFC) in adults. We also focus on additional neural regions

that may play a unique role in peer rejection experiences during adolescence (ventral striatum).

NEURAL REGIONS SUPPORTING AFFECTIVE RESPONSES TO SOCIALLY THREATENING SITUATIONS

Activity in the dACC and Responses to Social Exclusion

The dACC has now been repeatedly shown to play a role in participants' reported feelings of social distress following exclusion experiences. In addition to self-reported social distress to an episode of social exclusion correlating with dACC activity (Eisenberger et al., 2003), it has also been shown that individuals who tend to feel more rejected in their everyday social interactions (assessed using an experience-sampling methodology) also showed greater activity in the dACC in response to social rejection in the fMRI scanner (Eisenberger, Gable, & Lieberman, 2007).

In addition, a follow-up study suggested that activity in the dACC might also be an important mediator in the relationship between social support and health outcomes. Eisenberger and colleagues (Eisenberger, Taylor, Gable, Welch, & Lieberman, 2007) demonstrated that having lower social support was related to greater activation in the dACC during the exclusion round of Cyberball and that this greater dACC activity was associated with larger physiological stress responses (levels of cortisol, a stress hormone) to a similar social stressor. This finding suggests that having less social support may result in greater sensitivity to feeling excluded by others—perhaps because sensitivity to rejection is heightened when one does not have intact social bonds to buffer the pain of being rejected. Finally, another study examined whether the dACC is sensitive not only to the experience of social exclusion but also to cues that predict social exclusion as well, namely disapproving faces (Burklund, Eisenberger, & Lieberman, 2007). Although viewing disapproving faces (compared to viewing a neutral crosshair fixation) did not lead to greater dACC activity across all participants, individuals who scored higher in rejection sensitivity showed greater dACC activity while viewing disapproving faces. Moreover, rejection sensitivity correlated specifically with activity in the dACC in response to viewing disapproving faces, but not with the activity of other limbic regions (e.g., amygdala, insula), suggesting that dACC activity, rather than limbic system activity more generally, may be specifically responsive to these cues of rejection.

Activity in the Insula and Responses to Emotional Stimuli

In addition to the findings indicating that the insula is active during social exclusion experiences among adults, this region has been implicated in the subjective experience of a range of emotions that may be relevant to our understanding of peer rejection experiences during adolescence. For example, recent studies have shown that the insula is active during aversive and threat-related processing and is particularly sensitive to disgust-related as well as fear-related stimuli (Phillips et al., 1997; Schienle et al., 2002). Moreover, it has also been shown to be responsive to a variety of other types of negative emotional experiences such as feeling that one is being treated unfairly (e.g., Sanfey, Rilling, Aronson, Nystrom, & Cohen, 2003), as well as the anticipation of negative experiences and guilt (Shin, Dougherty, Orr, Pitman, & Rauch, 2000). Moreover, research has suggested that the insula may be specifically involved in the distressing experiences related to these emotions (Reiman, Lane, Ahern, Schwartz, & Davidson, 1997) and thus may be particularly relevant in trying to understand individuals' subjective experiences. Finally, in line with the role that the insula plays in visceral pain sensation (Aziz, Schnitzler, & Enck, 2000; Cechetto & Saper, 1987), many researchers have posited that insular activity underlies the link between internal somatic cues and emotional experiences, acting as a type of internal alarm to indicate when a situation is threatening (Phan et al., 2004). Given the emotional salience of experiences with peer rejection and the previous findings implicating this region's involvement among adults experiencing social exclusion (Eisenberger et al., 2003), the insula will be an important region to consider in the examination of neural patterns related to peer rejection among adolescents.

Activity in the Subgenual ACC and Responses to Emotional Stimuli

Studies examining social exclusion among adults have identified an additional area of the cingulate, the subgenual portion of the anterior cingulate (subACC), to be involved in responding to social exclusion. For example, the subACC has been shown to be more active upon learning that one has been socially accepted versus rejected by another individual (Somerville, Heatherton, & Kelley, 2006). Moreover, in the

examination of neural responses to disapproving faces (Burklund et al., 2007), individuals low in rejection sensitivity showed greater activity in the subACC while viewing disapproving faces. Studies such as these fit with previous work showing that subACC activity is associated with more positive or less threatening interpretations of potentially negative stimuli (Kim et al., 2003), a strategy that might be particularly relevant for rejected adolescents. However, there is also evidence to suggest that subACC activity may also be involved in emotional distress. Findings from clinical populations highlight a role for this region in experiences of both sadness and depression (Mayberg, 1997; Mayberg et al., 1999; Phan et al., 2004). Thus, the findings regarding the subACC are less clear than those found for the dACC. It is possible that this region operates differently for healthy participants compared to those with clinical disorders. Nonetheless, the subACC has been consistently linked with different aspects of emotional processing and could thus be potentially important when exploring these processes among adolescents.

Activity in the Amygdala and Responses to Emotional Stimuli

The amygdala has long been thought to be an area supporting threat detection and sensitivity to threatening social cues. Numerous studies have demonstrated that the amygdala is responsive to threatening emotional face stimuli (angry, fearful faces) presented either supraliminally or subliminally, as well as other types of aversive images (Davis & Whalen, 2001; Hariri et al., 2000; Hariri, Mattay, Tessitore, Fera, & Weinberger, 2003; Ohman, 2005; Whalen et al., 1998). In addition, it has been shown to respond to pictures displaying physical threats (Hariri, Tessitore, Mattay, Fera, & Weinberger, 2002; Ochsner, Bunge, Gross, & Gabrieli, 2002) and novel stimuli that suggest the potential for threat (Whalen, 1999). Moreover, research on social exclusion has shown that individuals who tend to feel the most rejected in their real-world social interactions also show greater amygdala activity in response to an experimental episode of scanner-based social rejection (Eisenberger, Gable, & Lieberman, 2007). Because of the consistency of this research, as well as the timing of the amygdala's development—which is complete long before adolescence—the amygdala is an important candidate to consider when hypothesizing about the neural correlates of social rejection among adolescents.

NEURAL REGIONS SUPPORTING AFFECTIVE REGULATION DURING SOCIALLY THREATENING SITUATIONS

Activity in the RVPFC and Regulation of Social and Emotional Distress

In terms of neural regulation of social and emotional distress, studies have continued to show the importance of the RVPFC/RVLPFC (right ventrolateral prefrontal cortex—a region slightly more lateral than RVPFC) in aiding regulatory processing following a socially threatening event. Follow-up studies of social exclusion have shown that more activity in the RVPFC is related to less distress, as well as less dACC activity (e.g., Eisenberger et al., 2007), further evidencing the role of the RVPFC in regulating distress by decreasing dACC activity in response to the distressing experience.

In addition, beyond these specific findings related to distress following social exclusion, research has indicated that the prefrontal cortex more broadly plays a regulatory function in several other studies examining responses to negative stimuli. For example, the prefrontal cortex has been linked with the regulation of negative affect such as fear (e.g., Hariri, Bookheimer, & Mazziotta, 2000; Nelson et al., 2003). In studies of negative emotion labeling and facial emotion perception, the RVLPFC has specifically been shown to regulate activity in the amygdala in a reciprocal relationship similar to that between the RVPFC/RVLPFC and the dACC (Hariri et al., 2000, 2002; Lieberman, Hariri, Jarcho, Eisenberger, & Bookheimer, 2005; Lieberman et al., 2007). Specifically, several of these studies have shown that the RVPFC/RVLPFC is activated during the labeling of negative affective states, suggesting that as individuals think about the labels for negative emotions, this may provide a catalyst for the regulation of the individual's affective response to the stimuli. Similarly, the RVLPFC as well as other regions of the prefrontal cortex have been shown to be involved in the reappraisal of negative social stimuli and have been specifically linked to the reduction of negative affect during the cognitive reappraisal of aversive images (Ochsner et al., 2002; Ochsner & Gross, 2005; Wager, Davidson, Hughes, Lindquist, & Ochsner, 2008). Together, the diversity of experimental manipulations in which the RVPFC/RVLPFC serves to help regulate neural activity underlying social and emotional distress, as well as to decrease subjective feelings of distress, underscores the consistency and robustness of the apparent regulatory function of this region and lends further support

to the role of the prefrontal cortex in regulating emotional response to a variety of aversive social stimuli.

Activity in the Ventral Striatum and Regulation of Negative Affect

One additional region that may prove important in studies of peer rejection among adolescents is the ventral striatum, and in particular the nucleus accumbens (NA), neural regions involved in reward learning and approach motivation among adults and children (McClure, Berns, & Montague, 2003; Schultz, 2004; Tindell, Smith, Pecina, Berridge, & Aldridge, 2006; Wager, Scott, & Zubrieta, 2007). While this might seem counterintuitive because experiences of rejection are clearly not rewarding, the NA and ventral striatum have shown evidence of involvement in processes that likely support successful emotion regulation. For example, a recent study demonstrated greater activity in the NA when reappraising aversive images, and this greater NA activity was associated with greater reappraisal success (Wager et al., 2008), further evidencing the role of this region in supporting regulatory processes. Although NA activity is not typically seen in studies of emotion regulation, this previous work suggests that the ventral striatum and NA may play a role in affect regulation by aiding in the reinterpretation of stimuli in positive ways.

THEORETICAL PERSPECTIVES AND NEUROIMAGING RESEARCH ON PEER RELATIONSHIPS

Theoretically, it is impossible to predict exactly which aspects of adolescents' neural responses during experiences with peer rejection will be similar to those seen among adults experiencing social exclusion. However, there are important developmental considerations to take into account before previous research with adults can be useful as a basis for forming hypotheses. In the following section, we outline several theories related to structural and functional brain development, as well as how brain maturation may impact social behavior during adolescence. Specifically, we examine how brain development across adolescence might inform our understanding of adolescents' emotional and behavioral responses to peers, as well as their ability to regulate their responses to social situations. After reviewing these theoretical perspectives, we discuss the handful of studies that have begun to examine the neural

correlates of social interactions among adolescent populations and consider how these first studies may inform our understanding of social interactions during this unique period of development.

Structural and Functional Brain Development During Adolescence

In considering potential differences between adults' and adolescents' responses to rejection, differences in brain maturity are a crucial factor to consider, particularly given the recent advancements in our knowledge about structural and functional differences across development. Qualitative functional differences related to structural disparities in adolescents' and adults' frontal regions may result in behavioral differences in responses to emotion-evoking stimuli across different ages. Structural brain development is typically examined by measuring the amount of grey matter in the brain, which decreases as myelination increases within a specific region. Because lower density of grey matter in a particular region (i.e., synaptic pruning) is related to heightened efficiency and faster information processing speed, studies of structural development allow inferences to be made about the efficiency of functioning that is supported by a particular brain region.

For example, studies of structural brain development have shown that the frontal regions of the brain are among the last to complete myelination (Casey, Giedd, & Thomas, 2000; Gogtay et al., 2004) and that grey matter density decreases between adolescence and adulthood in these regions (Sowell, Thompson, & Toga, 2004). In addition, these studies have shown that the prefrontal cortex continues to develop both structurally and functionally through late adolescence and into early adulthood (Gogtay et al., 2004; Giedd, Castellanos, Rajapakse, Vaituzis, & Rapoport, 1999).

Because many aspects of emotional and cognitive processing are supported by the prefrontal cortex, there are likely to be age-specific behaviors reflecting these structural differences between adults and adolescents. Indeed, studies have shown that the cognitive processes that undergo the greatest change during adolescence are those involving the frontal lobes (Levin et al., 1991). For example, differences in prefrontal functioning related to emotion regulation ability may suggest that young adolescents, for whom experiences with peer rejection are common, may not be fully capable of regulating reactions to negative social experiences. Thus, they may experience rejection as more distressing than

adults. Furthermore, individual differences in neural regulatory ability among adolescents may also help explain why some rejected adolescents go on to develop neuropsychiatric disorders later in life.

Brain Development and Implications for Social Behavior

A handful of developmental psychologists have specifically theorized about the impact of these developmental differences in neural responding to emotional and social stimuli. One recent set of studies has looked specifically at functional changes in brain activity in order to understand potential developmental differences, specifically in social and emotional domains. Nelson and colleagues outline a model of the social information processing network (SIPN) in the brain, composed of three different types of functions, each of which independently contributes to brain function and related behavioral changes during adolescence (Nelson, Leibenluft, McClure, & Pine, 2005). They propose a detection node, in which a stimulus is labeled as “social,” an affective node that attaches emotional significance to the stimulus, and a cognitive-regulatory node, in which perspective taking and judgments are made in order to determine an appropriate affective response (Nelson et al., 2005). The authors suggest that while the regions involved in the detection node are well developed by adolescence, frontal regions associated with the affective and cognitive-regulatory nodes are still undergoing functional changes that may impact social behavior and emotional processing during this time. Problems may arise if adolescents can detect a social stimulus but cannot understand the emotional significance of the situation or determine an appropriate emotional or behavioral response. In addition, while both the affective and cognitive-regulatory aspects of the SIPN undergo changes during adolescence, development of the affective node occurs primarily during puberty (Steinberg & Morris, 2001), whereas development of the cognitive regulatory node may not occur until well past puberty (Casey et al., 2000; Ochsner et al., 2002). Thus, adolescents may be able to detect a social situation and experience an emotional reaction, yet they may not be able to make meaningful assessments of others’ perspectives or control their emotional responses.

Another theorist, Larry Steinberg, has pointed out that this apparent mismatch in brain development, in which the regions that react to a particular stimulus develop prior to the regions enabling the regulation and/or inhibition of these responses, may be particularly problematic in the context of peer interactions (Steinberg, 2008). As he points

out, approval by peers and even the mere presence of peers can be especially rewarding among adolescents, and the neural tools necessary to inhibit the desire to please peers and win approval through various risk-taking activities have yet to develop. Thus, this developmental period is particularly problematic in situations where strong emotional responses must be regulated (Steinberg, 2008). Clearly this theory has implications for adolescents' experiences with peer rejection. While the desire to gain approval and avoid rejection may be particularly intense, it may be impossible for adolescents to manage the emotional responses that they experience when rejection occurs.

Overall, given the findings related to structural brain development, as well as the theoretical implications of brain development for behavioral responses during adolescence, examining patterns of neural activation among adolescents during an experience of peer rejection could highlight two important issues related to how adolescents process these experiences and regulate their emotional responses. First, neuroimaging studies of peer rejection during adolescence could demonstrate how underlying regulatory processes among adolescents at different stages of development result in varying levels of emotional response. Second, neuroimaging studies of peer rejection among adolescents could reveal additional regions beyond the prefrontal cortex that might also play a role in distress regulation, given that adolescents' brains are qualitatively different from those of adults. Examining both of these issues and gaining understanding of how the prefrontal cortex and other brain regions contribute to adolescents' distress regulation could explain developmental and individual differences in psychological responses to rejection among this population for which peer rejection is particularly salient.

Neuroimaging Studies of Peer Interactions Among Adolescents

Although previous neuroimaging research has not directly examined adolescents' experiences with peer exclusion, a small number of studies have recently begun to explore neural patterns related to peer interaction, specifically among adolescent populations. One recent experiment examined adolescents' neural responses to experimentally manipulated peer feedback during a chat room game in which participants believed they were participating with other same-age peers and were repeatedly accepted and rejected by different peers in the chat room (Guyer, McClure-Tome, Shiffrin, Pine, & Nelson, in press). Findings indicated that during peer

acceptance, compared to rejection, there was significant activation in the ventral palladium, a region that has previously been implicated in reward processing (Ikemoto & Wise, 2004; Waraczynski, 2006). This finding provides support for Steinberg's theory (2008) that the presence of peers in itself is rewarding to adolescents, and that peer group situations are likely to engage regions associated with emotional and reward processing in adolescents, regardless of the exact nature of the task. In a different study using the same chat room paradigm, clinically anxious adolescents—who typically judge themselves as being unaccepted by peers—displayed significantly more amygdala activation than typically developing adolescents when anticipating feedback from peers who were previously rated to be more likely to provide negative feedback (Guyer et al., 2008). This interesting finding suggests that clinically anxious adolescents might be significantly more sensitive to expected negative peer feedback and again supports the role of the amygdala in the neural processing of socially threatening stimuli.

One other recent study examined how individual differences in self-reported resistance to peer influence impacted adolescents' neural responses while viewing videos of angry faces compared to responses while viewing videos of neutral faces (Grosbras et al., 2007). Results from this study revealed that adolescents who were less able to resist peer influence also displayed heightened neural sensitivity, including increased activity in the dACC, when watching angry faces. This finding suggests that individuals who are more sensitive to peer pressure might display heightened affective responses to threatening social-emotional stimuli and may use more attentional resources when viewing threatening social cues (Grosbras et al., 2007). Consistent with previous studies of social exclusion with adults, this study suggests that adolescents may use similar neural resources when processing socially threatening stimuli; however, their neural patterns of activation may be dependent, in part, on individual differences in responses to peer influence.

Finally, a recent study conducted in our lab has specifically examined neural processes among adolescents during an experience of simulated peer rejection. Using the same Cyberball task that has been used previously (Eisenberger et al., 2003, 2007), we scanned 23 adolescents (ages 12–13) while they were first included and then excluded by two other same-age apparent participants who were actually controlled by the computer. Following the scan, participants completed self-reports of distress felt during the exclusion round of the task. In addition, adolescents completed self-reports of rejection sensitivity and their parents

completed reports of their interpersonal competence (e.g., has lots of friends, fights at school), so that we could examine how sensitivity to peer rejection and social skills might interact with neural and distress responses to peer rejection.

Overall, data from this study (Masten et al., in press) has revealed interesting findings that help explain how adolescents may experience peer rejection in unique ways. During exclusion, adolescents displayed some brain activation similar to adults; however, results indicated that adolescents might also process the experience of exclusion in ways specific to this unique stage of development. For example, adolescents' regulatory processes during rejection were supported, not only by the RVL PFC but also by the ventral striatum, a region that has been found to help with affect regulation among adults (Wager et al., 2008), as well as among individuals with atypical prefrontal cortex function that undermines the normal functioning of their regulatory systems (e.g., Dickstein & Leibenluft, 2006). Because the prefrontal cortex is not fully developed until adulthood (Gogtay et al., 2004), ventral striatum activity may help regulate adolescents' affective responses to threatening stimuli during this stage of development and compensate for an underdeveloped prefrontal cortex. Results further revealed that adolescents who scored higher on parent-reported interpersonal competence were actually more sensitive to rejection, as indexed by both higher self-reported rejection sensitivity as well as greater distress-related neural activity during the rejection episode. A potential implication of this neural link between interpersonal competence and responses to rejection during adolescence is that being able to understand and be affected by rejection may be an important aspect of being able to get along well with others, particularly during this developmental period.

EMPATHIC RESPONSES TO PEER REJECTION IN ADOLESCENCE: NEURAL RESPONSES TO WITNESSING THE REJECTION OF OTHERS

Observing Peer Rejection During Adolescence

In considering how adolescents' responses to rejection might differ from adults, it is critical to consider the social environment that is typical of the adolescent period. In contrast to most adults, adolescents are affected not only by personal experiences with rejection but also by their larger environment in which rejection is exceedingly common. Adolescents who

are not being directly excluded by peers may anticipate rejection, feel anxious about avoiding rejection, and experience feelings of empathy for their peers who are being rejected. Among developmental psychologists specifically, empathy has traditionally been defined as an affective response resulting from one's understanding and anticipation of another's emotional state that is similar to the emotion that this other person feels (Eisenberg, 2000; Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Eisenberg, Miller, Shell, McNally, & Shea, 1991). Thus, empathy involves aspects of cognitive perspective taking, as well as *actually experiencing* the same emotion as the observed individual. Although ability to empathize plays an adaptive role in social interaction—that is, empathic experiences have been associated with prosocial behavior and are thought to encourage successful social communication for both children and adults (Denham, Renwick-DeBardi, & Hewes, 1994; de Vignemont & Singer, 2006; Zahn-Waxler et al., 1992)—research also suggests that when observing someone else during a stressful social situation, individuals will themselves experience distress at both emotional and physical levels. For example, one study found that on a daily basis, both being rejected by peers and witnessing another individual being rejected by peers resulted in equally elevated levels of anxiety (Nishina & Juvonen, 2005). This finding suggests that concern about rejection during adolescence is likely to be salient to the majority of adolescents, regardless of their own social status among their peers.

Regulation of Empathic Distress

Experiences of empathic distress—feeling personally distressed as part of an empathic experience—are particularly important when considering emotion regulation demands on adolescents. Researchers have shown that empathic distress is directly related to emotion regulation ability, such that those who feel more empathic distress show reduced ability to regulate emotion (Eisenberg, Fabes, Murphy, Karbon, & Maszk, 1994; Eisenberg, Wentzel, & Harris, 1998; Eisenberg et al., 1996). Many types of social reasoning skills, including the ability to regulate empathic responses, improve significantly between childhood and adolescence as regulatory ability improves (Eisenberg, Miller, Shell, McNally, & Shea, 1991). Thus, these cognitive advancements such as emotion regulation ability will likely impact how empathic events are subjectively experienced as individuals transition through adolescence and should be carefully considered.

Examining Both Personal and Empathic Distress Resulting From Peer Rejection

Given the evidence that witnessing peer rejection can be significantly distressing, as well as dependent on emotion-regulation abilities, it may be important to account for both subjective and empathic experiences that result from peer rejection when considering which methodological tools will best measure individuals' experiences. In other words, to be comprehensive, analytical techniques designed to measure responses to rejection should tap into direct, personal experiences of rejection, observed experiences of others' rejection, and the regulatory systems that support both of these experiences. Neuroimaging may be particularly useful in this regard, given the contributions that neuroimaging studies have recently made to our understanding of both subjective and empathic responses in social situations more generally. For example, research has shown that individuals not only show neural evidence of distress when they directly experience a negative event but also when they witness another person experiencing a negative event (e.g., Singer et al., 2004, 2006). Uncovering these types of common underlying mechanisms for both experiencing and observing a negative social situation will likely help explain why certain events impact well-being, regardless of whether they are directly experienced, or just observed.

Neural Responses During Empathic Emotional Experiences Among Adults and Adolescents

Although neuroimaging research is just beginning to consider empathy related to peer rejection, recent neuroimaging research with adults has begun to identify some of the neural correlates of empathic processes that may provide clues about how empathic experiences of peer rejection are processed neurally by adolescents. Specifically, studies have consistently shown the dorsomedial prefrontal cortex (dmPFC) to be related to thoughts about the self and others, including processing of reflected appraisals (i.e., thinking about what others think about oneself; Frith & Frith, 1999, 2006), theory of mind and perspective taking (Vogeley et al., 2001), and self processing (Heatherton et al., 2006; Lieberman et al., 2004; Pfeifer, Lieberman, & Dapretto, 2007; Frith & Frith, 1999). Neuroimaging work has also suggested a potential mechanism for how individuals experience others' emotional states as their own. Several studies of adults have provided evidence that there

is overlapping brain activity when people both experience an emotion and observe someone else feeling the same emotion, for example disgust (Wicker et al., 2003) and fear (Whalen et al., 2001), as well as pain-related distress (Botvinick et al., 2005; Jackson, Brunet, Meltzoff, & Decety, 2006; Singer et al., 2004). In addition, new evidence in children suggests overlapping brain regions when making an emotional expression and when observing another child making the same emotional expression (Pfeifer, Iacoboni, Mazziotta, & Dapretto, 2008).

This work suggests that perhaps the reason individuals are able to empathize with others and experience their emotions is precisely because of the shared neural representations during the experience and observation of emotional stimuli. It is further posited by de Vignemont and Singer (2006) that the degree of neural overlap is dependent on an individual's appraisal of a situation, so that if an observed emotion is viewed as appropriate given the social context, an empathic response is more likely than if the emotion is viewed as inappropriate or unjustified. Thus in cases where adolescents experience exclusion and then observe another adolescent being excluded, they may be more likely to anticipate that the other adolescent feels rejected and that this emotion is justified, given that they previously experienced the same emotion. In this case there would likely be an overlap of neural activity reflecting the similarity between the adolescent's own distress response and his or her empathic distress response when observing another adolescent's similar experience with exclusion. As a whole, these adult studies of the neural correlates of empathic processing provide a context for thinking about the experiences of adolescents and specifically, how witnessing peer rejection may be represented in the brain.

In an ongoing study (Masten et al., 2008), we are attempting to identify some of the neural regions that may be involved in empathic responses to peer rejection experiences during adolescence. A group of adolescents (aged 12–13) completed a version of the Cyberball task in which, after playing the game themselves, they were asked to observe closely while another supposed participant played the game with two supposed peers (in this version all three of these supposed players were controlled by a preset computer program). As with previous Cyberball studies, the supposed participant was first included and then excluded by the other two players. Preliminary analysis of this dataset has revealed common neural activations during personal rejection and empathic rejection in regions that have been previously linked to distress and regulation during pain processing (subACC, insula, and RVL PFC). The presence of these shared

neural representations for both experiencing and witnessing rejection suggest that these two experiences rely on overlapping neural circuitry, which may explain why witnessing others' rejection may be painful and harmful to well-being in ways similar to personal rejection.

SUMMARY AND CONCLUSION

In the preceding discussion we have attempted to demonstrate the unique contribution that social cognitive neuroscience can make to developmental psychologists' understanding of the salience of peer rejection during adolescence. We have outlined the ways in which fMRI can allow scientists to observe neural processes responsible for adolescents' responses to rejection as they are occurring, and we have specifically suggested that neuroimaging techniques will increase our knowledge about how distress related to peer rejection is regulated and thus how individuals may display a wide range of responses to a rejection experience. We also reviewed previous social cognitive neuroscience research with adults, which has clearly implicated specific limbic and frontal regions in the neural processing of social exclusion, and we discussed what differences we might expect when analyzing these processes in an adolescent population. Specifically we highlighted the importance of considering structural and functional differences resulting from immaturity of frontal regions among adolescents, and we outlined the ways that these differences might interact with social behavior and alter behavioral outcomes in the context of peer relationships. In addition, although little peer interaction research has been performed among adolescents using fMRI methods, we summarized the handful of studies that have begun to pave this new direction of research. Finally, in an attempt to consider some less traditionally examined aspects of peer rejection experiences during adolescence, we hypothesized that examining empathic responses to witnessed peer rejection may broaden our understanding of peer rejection salience during adolescence, and that neuroimaging techniques may be particularly useful in elucidating why witnessed rejection is so salient for adolescents' well-being.

As social cognitive neuroscience is integrated into the field of adolescent peer relations, it is our hope that many of these issues will be clarified and new directions of research will be identified. As this research progresses, there is no limit to the knowledge that may be gained by incorporating behavioral and neuroimaging techniques in this field.

For example, in addition to identifying the neural substrates of peer rejection among adolescents and examining potential mechanisms that might contribute to individual response differences, future research has the potential to examine the beneficial effects of friends and social support in the context of peer rejection, to characterize chronically rejected adolescents at the neural level, to investigate neural correlates of bullying and/or peer rejection from the perspective of the perpetrator, and to predict future psychopathology based on current individual differences in neural sensitivity to peer rejection. These new directions of research, forged by the intersection of adolescent peer relations and social cognitive neuroscience, have unlimited potential for new understanding, and we believe that the translational quality of peer relationships research is likely to become even more multidimensional as this field progresses.

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4

Why's Everybody Always Picking on Me? Social Cognition, Emotion Regulation, and Chronic Peer Victimization in Children

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Why's everybody always pickin' on me?

—The Coasters

Peer victimization refers to a broad spectrum of social interactions whereby one individual causes physical, emotional, social, or psychological harm to one or more peers. Virtually all children experience victimization at the hands of their peers at some point in their lifespan (Kochenderfer-Ladd & Ladd, 2001). For a subset of children, however, victimization is a stable and chronic phenomenon. Olweus (1991) indicated that approximately 10% of children report being victimized by peers on a regular basis, and stability coefficients for victimization have been reported ranging from .80 over a period of months (Boulton & Smith, 1994) to .41 for a period of a year (Kochenderfer-Ladd & Ladd, 2001). Chronic peer victims often experience serious short- and long-term consequences including internalizing and externalizing disorders, school avoidance, academic dysfunction, and increased suicidal ideation (Hawker & Boulton, 2000; Hodges & Perry, 1999; Kochenderfer & Ladd, 1996a, 1996b), and peer victimization has recently been recognized as a major public health problem of childhood in a recent APA resolution (American Psychological Association, 2004).

This chapter aims to provide an examination of how the implicit cognitive and emotional processing styles of chronic victims are related to their risk of victimization. We begin by offering a (necessarily brief) review of research on the development of chronic victimization. We then organize and integrate this research within a new model of peer victimization that focuses on the social-cognitive and socioemotional processing variables. Last, we present results from recent studies from our laboratory testing and supporting aspects of the victim schema model.

THE DEVELOPMENT OF CHRONIC PEER VICTIMIZATION

Biological and Emotional Factors

Peer victimization is likely an outgrowth of both biological and experiential processes, with factors such as temperament putting children at risk for victimization by impairing their early social interactions (see Kochenderfer-Ladd, Ladd, & Kochel, this volume). For example, young children with overcontrolled/inhibited or undercontrolled/surgent temperaments have been demonstrated to have difficulty modulating physiological, emotional, and behavioral responses to social settings (Eisenberg, Fabes, Guthrie, & Reiser, 2000; Gunnar, Sebanc, Tout, Donzella, & van Dulmen, 2003), which can disrupt their early social interactions and put them at greater risk for being victimized by peers. Gunnar et al. (2003) reported that preschool children with higher baseline cortisol levels (which can serve as a marker of either an overcontrolled/inhibited or undercontrolled/surgent temperament) were more likely to be rejected by their peers than were children with lower baseline levels of cortisol activity. Similarly, Rubin, Burgess, and Hastings (2002) indicated that toddlers with behaviorally inhibited temperaments were more likely to demonstrate anxious behaviors during peer interactions at age 2 and again at age 4. More evidence for biological influences on peer victimization is found in a recent study indicating that peer victimization demonstrated significant heritability estimates (Ball et al., 2008), which the authors attributed to the genetic contributions to temperament and emotional regulation.

The demonstration of genetic and physiological predictors of victimization raises the question of what proximal processes mediate this relationship. Recent research suggests that emotional competence and emotion regulation play pivotal roles in the peer victimization cycle.

A study by Denham et al. (2003), for example, found that socially competent preschool children who failed to develop effective emotion regulation abilities for peer interactions were less likely to be socially competent by age 5. Browning, Cohen, and Warman (2003) found that chronically victimized children who demonstrated increased social competence over the course of a year were significantly less victimized at the end of the year than were children who did not demonstrate increases in social competence. Early victimization experiences may thus interfere with the development of social emotion regulation and peer competence abilities in young children, leaving them at greater risk for later victimization.

Other studies have demonstrated that children demonstrate negative emotional arousal (i.e., anger, fear, distress) while being victimized by peers (Wilton, Craig, & Pepler, 2000), and that children with poorer overall emotion regulation abilities are more likely to demonstrate physiological indicators of distress (i.e., greater heart rate reactivity, poorer vagal tone suppression) when confronted with social threats from peers (Hessler & Katz, 2007).

The role of emotional distress and physiological arousal was examined in depth in a study from our laboratory (Bollmer, Harris, & Milich, 2006) that used a narrative methodology to examine the relations among frequency of victimization experiences, emotional distress linked to victimization, and physiological arousal. The narrative task has particular utility for studying the emotional reactions of children to victimization, given both the difficulty in accurately simulating victimization encounters (particularly those that occur in a dyadic relationship or group context or that involve relational victimization) and children's often inconsistent reporting of their emotions and behavior during peer conflicts (Perry, Hodges, & Egan, 2001). We proposed that children who had experienced more frequent victimization would demonstrate more emotional distress when asked to relate narratives of real-life victimization experiences, with a corresponding increase in physiological arousal (Bollmer et al., 2006).

In the study, 99 children between the ages of 10 and 13 were videotaped while telling a narrative of a particularly salient victimization experience they had encountered, and their skin conductance levels were recorded during this task as well as while relating a control narrative. The videotapes were later rated by judges blind to the victimization status of the children for several theoretically relevant variables, including the degree of emotional distress displayed during the narrative. Victimization status was assessed through a composite of several self- and parent-report measures.

Analyses showed that children who had experienced more frequent victimization at the hands of their peers demonstrated more emotional distress while relating narratives of real-life victimization episodes. Children who had experienced more frequent victimization also related narratives with more vivid emotional content, expressed more anger at the perpetrator of their victimization, and were more likely to blame children involved in the incident.

These findings have implications for understanding long-term patterns of victimization, as other studies have demonstrated that children who experience emotional distress during peer conflict are more likely to use maladaptive response strategies (Kochenderfer-Ladd, 2004), and some have speculated that emotional arousal overrides chronically victimized children's abilities to choose and effectively apply learned conflict resolution strategies (Rosen, Milich, & Harris, 2007; Rubin, Bukowski, & Parker, 1998).

Surprisingly, although a main effect was obtained such that children displayed more physiological arousal while telling the victimization narrative compared to the control narrative, no relation emerged between the extent of victimization history and physiological arousal on the victimization narrative task (Bollmer et al., 2006). It is possible that the method used to measure arousal (changes in skin conductance levels) was not sensitive enough to capture the covariances in arousal and victimization that have been demonstrated using other methodologies (i.e., cortisol levels, vagal tone suppression; Gunnar et al., 2003).

Data exist to suggest that the relations of cognitions, emotions, and victimization identified in the discussion above persist even into adulthood. Georgesen, Harris, Milich, and Young (1999) used a narrative methodology task to assess the relations of childhood histories of teasing, social perceptions, and emotional reactivity in adults. Participants were asked to give brief narratives of real-life experiences of peer victimization, which were then coded for socioemotional content. Analyses revealed that the content of adults' narratives of real-life childhood teasing episodes was related to both their overall level of negative emotion (i.e., neuroticism) and the frequency with which they had experienced peer victimization across their lifespan. Specifically, individuals with histories of more frequent victimization were less likely to express forgiveness during their narratives. Victimization history was also substantially related to negative emotion, with individuals who were more frequently victimized in childhood more likely to demonstrate high levels of negative emotion (i.e., neuroticism) in adulthood.

Social Cognitive Factors

In addition to these more biologically based factors, considerable evidence suggests that characteristic social cognitive and emotional processing patterns may also put children at risk for later victimization. Crick and Dodge's (1994) reformulated social information-processing model is perhaps the best known example of theory and research in this area. Crick and Dodge (1994) outlined a process where a central database of previously learned social information affects children's step-by-step processing of information in social interactions, including their encoding and interpretation of cues, their setting of social goals, and response generation and enactment. They theorized that this database of social information determines how a child processes information in ambiguous social situations, and determines whether the child generates and enacts an adaptive or maladaptive social response.

Frequent victimization in early childhood may lead a child to develop associations with victimization in a broader array of situations and respond to these situations with emotions, biased cognitive processing, and behaviors consistent with victimization (i.e., Crick & Dodge, 1994; Hanish et al., 2004; Murphy & Eisenberg, 2002; Rosen et al., 2007; Schwartz, Dodge, & Coie, 1993). A self-fulfilling prophecy essentially results, whereby the child interprets peer behavior as threatening, expects to be victimized, responds in a manner consistent with victimization, and is subsequently victimized as a result.

THE VICTIM SCHEMA MODEL

Based on the research described above documenting relations between emotional distress in victimization encounters, variations in social-cognitive processing of victimization experiences, and frequency of experiencing peer victimization, we developed a theoretical model of the reciprocal development of social-cognitive and socioemotional risk factors and chronic peer victimization. This model proposes that victimization experiences interact with children's social-cognitive and socioemotional processing through development of an easily accessible "victim schema."

As shown in Figure 4.1, the victim schema model integrates elements of Baldwin's (1992) relational schema theory, Crick and Dodge's (1994) reformulated social information-processing model, and Perry, Hodges, and Egan's (2001) initial formulation of the victim schema, and proposes

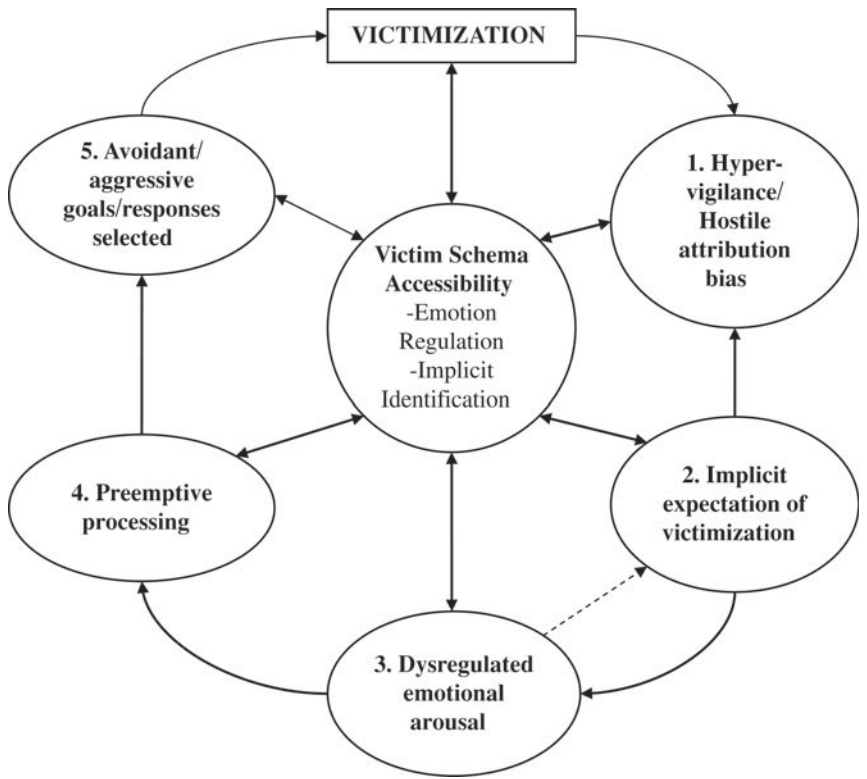


Figure 4.1 The victim schema model.

several distinct mechanisms by which accessibility of the victim schema interacts with children’s social information processing and emotional reactivity to put children at risk for victimization. While all children possess a schema for peer victimization experiences, the ease with which these victim-relevant cognitions and emotions activate in response to peer behavior varies widely. Accessibility of the victim schema is proposed to develop as a result of the interaction between the previously discussed biological influences such as temperament and early socialization experiences (i.e., parent-child interactions, early peer experiences). The relation of victim schema accessibility with frequency of peer victimization is conceptualized as cyclical and dynamic, with victimization strengthening the accessibility of the victim schema and reinforcing the victim-relevant social-cognitive and socioemotional processing patterns, just as schema accessibility increases the risk for future victimization.

CORE COMPONENTS OF THE VICTIM SCHEMA MODEL

Implicit Self-Association With Victimization

Baldwin's (1992) summation of relational schema theory defines a relational schema as a "cognitive structure representing regularities in patterns of interpersonal relatedness" (p. 461). Schemas include knowledge, perceptions, and expectations of the self; knowledge, perceptions, and expectations of others in the interaction; interpersonal scripts based on generalizations of previous experiences; individual motivations; and affective reactions. This model holds that social interactions that are frequently experienced are internalized into schematically represented scripts, including assignment of roles and expectations of outcomes. For example, a child may have a "birthday party" schema specifying the typical activities engaged in and sequence of events (games, cake, opening presents, goody bags). The more frequently individuals experience a certain role within a social interaction, the more likely that they will incorporate that role into their social schemas. Internal and external cues that are associated with the interaction thus become more strongly associated with the schema through mutual activation, such that perception of these cues activates an expectation of assuming the schematic role (Greenwald et al., 2002).

Children who experience frequent conflict with peers may develop strong implicit associations between their internal representations of conflict and their concepts of self, such that they associate themselves with conflict in peer interactions (i.e., Dodge & Coie, 1987). When these conflicts frequently result in victimization, they thus incorporate this experience of being victimized into their conflict schemas and implicitly associate themselves with victimization when they perceive a threat. In more basic terms, children who are frequently victimized by peers develop internal scripts for peer conflict in which they are identified as the victim and peers are identified as aggressors. The more often they experience victimization the more accessible their victim schema becomes, as it increases the likelihood that a peer behavior will activate the victim script. Internal and external cues associated with prior conflict experiences thus become triggers for activation of the victim schema through their mutual associations between themselves and victimization, leading them to implicitly expect victimization as a result of a broad range of peer behaviors (Greenwald & Farnham, 2000).

Initial support of the theory that frequently victimized children incorporate their experiences as victims into their internal self-representation is provided by a pair of studies focusing on children's attributions about victimization. Graham and Juvonen (1998) found that children who perceived themselves as victims typically attributed victimization experiences to stable and internal character factors (i.e., "it's something about the way I am") while children who did not perceive themselves as victims were more likely to attribute victimization to either unstable causes or external influences (i.e., "it's something I did wrong;" Graham & Juvonen, 1998, p. 588), suggesting that they had formed a strong implicit association between victimization and their self-concept. Similarly, Prinstein, Cheah, and Guyer (2005) found that adolescent boys who made more critical self-referent attributions in response to social conflict were more likely to experience victimization than were adolescents who made positive or neutral self-attributions, suggesting that their social behavior is likely guided by the ease of accessibility of these internal representations of themselves as victims.

According to the victim schema model this link between victimization and the self-concept will increase a child's expectation of victimization in social settings, thus reinforcing itself by decreasing their efficacy in peer conflict situations and increasing the likelihood that they will be victimized in the future.

Emotion Regulation

Controlling and moderating the experience and expression of negative emotions is a crucial skill for the development of adaptive peer relations. Numerous studies have indicated that expression of negative emotions is a key factor in children's peer relations, as peers indicate clear preferences for children who display higher rates of positive emotionality and lower rates of negative emotionality (Maszk, Eisenberg, & Guthrie, 1999). Children who exhibit high rates of negative emotionality often experience numerous indicators of social dysfunction, including low social status (Maszk et al., 1999), poor social skills and low rates of prosocial behavior (Eisenberg et al., 2000), peer rejection (Bierman, 2004), and victimization by peers (Hanish et al., 2004), while children who are higher in dispositional emotional negativity have both fewer friends and lower-quality friendships than children who demonstrate less negative emotions (see Hay, Payne, & Chadwick, 2004 for a review). However, the degree to which children with higher rates of dispositional negative

emotions are able to exhibit effortful control to regulate their emotional and behavioral responses to stressful situations may mediate the relation between dispositional negative emotionality and peer problems (Eisenberg et al., 2000; Murray & Kochanska, 2002).

The victim schema model posits that it is not just dispositional negative emotionality but difficulty regulating negative emotional responses that puts children at risk for victimization (Rosen et al., 2007). Several studies by Eisenberg and colleagues have established a link between emotional regulatory abilities and indicators of social functioning, such that emotion regulation mediated the link between dispositional negative affect and social status (i.e., Eisenberg et al., 1993; Maszk et al., 1999). Research has suggested that this effect extends to peer victimization as well, as a recent study by Hanish et al. (2004) found that young children who were higher in dispositional negative emotionality were victimized less by peers if they were better able to regulate their negative emotions, while Kelly, Schwartz, Gorman, and Nakamoto (2008) demonstrated that increases in emotion regulation difficulties mediated the effect of exposure to community violence on peer rejection.

Research also indicates that emotion regulation becomes more difficult as intensity of emotional arousal becomes stronger, indicating that children who experience more intense anxiety or anger arousal have greater difficulty regulating their affect and behavior (Eisenberg & Fabes, 1992). It also follows that the more negative an outcome a child expects, the more intense his or her emotional reaction will be. Children who activate a victim schema in response to threat are more likely to expect an intensely negative outcome for the conflict interaction, as victimization often results in loss of a resource, loss of social status, or experience of physical or emotional pain (Hodges & Perry, 1999; Olweus, 1978; Patterson, Littman, & Bricker, 1967). Children who have difficulty regulating emotions are thus likely to experience an intense negative arousal in association with the expectation of victimization, making it difficult for them to control their emotional distress, efficiently process social information, set goals, and enact response strategies to effectively navigate the conflict.

Hypervigilance/Hostile Attribution Bias

The victim schema model adopts the perspective of both the relational schema model and the social information-processing model that individuals will interpret and assign intent to the behaviors of others based

on previously encountered experiences (Baldwin, 1992; Crick & Dodge, 1994). Research supports the notion that children who have more experience with aggression as either aggressors or victims are more likely to attribute hostile intent to behaviors of others, even when that behavior is objectively ambiguous, than are children who have less substantial experiences with aggression and conflict (i.e., Crick & Dodge, 1994; Crick & Dodge, 1996; Schwartz et al., 1998).

Schwartz and colleagues (1998) theorize that as children become more accustomed to being threatened by their peers they become wary and suspicious of other children, making them more vigilant for and sensitive to threatening cues. Crick and Dodge's (1996) examination of processing in aggressive children found that hostile attribution bias was prevalent in children who were reactively aggressive (aggressive in response to provocation) but not in children who were exclusively proactively aggressive (aggressive for instrumental purposes), suggesting that it is not just familiarity with aggression but frequency of experiencing threat that leads children to represent their peers as hostile and threatening. Similarly, Schwartz and colleagues (1998) demonstrated that boys in playgroups of previously unacquainted children were more likely to make attributions of hostile intent when read vignettes describing ambiguous behaviors if they had greater lifetime histories of victimization.

In sum, children who are frequently victimized by their peers likely develop an expectation that their peers will be hostile and threatening, become hypervigilant for threatening cues, and thus automatically attribute hostile intent to peer behavior unless provided with explicit evidence of prosocial intent (Crick & Dodge, 1996; Schwartz et al., 1998). This perception of threat thus activates the child's victim schema, leading to an implicit identification with the victim role and an expectation of victimization.

Emotional Distress and Preemptive Processing

All children typically experience some negative emotional distress in the presence of social threat (Wilton, Craig, & Pepler, 2000; Murphy & Eisenberg, 2002); however, it is likely to be particularly intense and debilitating for children with easily accessible victim schemas given the schematically driven expectation of victimization (Rosen et al., 2007). Some have speculated that emotional arousal overrides chronically victimized children's abilities to choose and effectively apply learned conflict resolution strategies (Rosen et al., 2007; Rubin et al., 1998), such that children who experience strong negative emotional arousal may be

unable to accurately attend to and process external cues (i.e., Lemerise & Arsenio, 2000; Rieder & Cicchetti, 1989) and instead rely on automatic “preemptive processing” of information (Costanzo & Dix, 1983).

Supporting this assertion is work by Rosen and colleagues (2007) and Schippell, Vasey, Cravens-Brown, and Bretveld (2003), who found that children with histories of reactive aggression and peer victimization displayed suppressed attention to socially threatening words on construct interference tasks (e.g., the emotional Stroop, probe detection tasks), despite the greater emotional salience of the words. This inhibited ability to flexibly attend to and process external and internal information has significant ramifications for chronically victimized children's ability to select and implement effective and prosocial response strategies in the presence of threat. Indeed, studies have demonstrated that chronically victimized children are often able to both discriminate effective from ineffective responses to threat and independently generate appropriate conflict resolution strategies when asked in a laboratory context, but they are significantly more likely to use emotionally driven and ineffective response strategies when actually confronted by peers (see Perry et al., 2001; Kochenderfer-Ladd, 2004, for a review).

Goal Selection and Response Generation

Goal selection for social interactions is thought to be heavily influenced by emotional state (Murphy & Eisenberg, 2002), such that children who experience an increase in internalizing emotions (i.e., fear, anxiety) will likely select goals based on reducing arousal through submissive or avoidant behavior (i.e., submission, flight) and children who experience increases in externalizing emotions (i.e., anger) likely select goals based on reducing arousal through reactively aggressive behavior. Children's goals for social interactions restrict the generation of possible responses, and responses are evaluated with respect to their ability to help achieve the previously selected goal (Crick & Dodge, 1994). Murphy and Eisenberg (2002, p. 536) state that “children's reported behavioral tendencies during provoking incidents with peers are relatively consistent with their goal tendencies,” with children who report hostile goals displaying more hostile behavior and children who report friendly goals displaying more affiliative and appeasing behavior.

Studies have demonstrated that children who are chronic victims of their peers engage in high rates of either submissive or reactively aggressive behaviors in response to threat and that children who frequently

employ these responses to threat are likely to be victimized (i.e., Olweus, 1978; Schwartz et al., 1993; Schwartz et al., 1998). Both submissive and reactively aggressive responses to threat are consistent with the victim schema's formulation of intense emotional arousal leading to the rigid application of the activated victim schema to the generation of goals and responses to perceived peer threat, and have been demonstrated to be associated with increased victimization (i.e., Olweus, 1978; Schwartz et al., 1993; Schwartz et al., 1998; Kochenderfer-Ladd, 2004).

TESTING THE VICTIM SCHEMA MODEL

Our initial study of the victim schema model examined social-cognitive and socioemotional patterns associated with histories of frequent peer victimization in children to determine if victim schema accessibility was associated with concurrent frequency of victimization (Rosen et al., 2007). Eighty-seven children between the ages of 9 and 13 completed a laboratory protocol to assess their social and emotion processing in the presence of social threat. Children completed several methodologies to assess social-cognitive processing, including the victim narrative task, a version of the Implicit Association Test (Greenwald & Farnham, 2000) that assessed the degree of identification of self as victim, and a peer victimization-specific adaptation of the emotional Stroop task (Williams, Mathews, & McLeod, 1996). The Stroop task proved particularly useful, given its ability to be used to assess both emotionally-driven construct interference (Williams et al., 1996) or emotionally dysregulated construct avoidance (Newman & McKinney, 2002). Frequency of experiencing victimization was assessed using a composite of parent- and child-report versions of the Perception of Peer Support Scale (PPSS; Ladd & Kochenderfer-Ladd, 2002).

This study provided good initial support for the victim schema model, as both the frequency with which children had experienced peer victimization and their rated emotional distress while relating victim narratives were significantly related to the accessibility of the victim schema. Consistent with the victim schema model, children who demonstrated an implicit self-identification with the victim role (as assessed by the victim IAT) were significantly more likely to report experiencing frequent victimization, indicating that they were internalizing their victimization experiences into their implicit self-concept. Victimization history was also strongly associated with construct avoidance

of victimization on the emotional Stroop task, signifying that children who had been more frequently victimized were less able to attend to victimization-related stimuli. Further, children who demonstrated high rates of construct avoidance also demonstrated significantly more distress on the victim narrative task, suggesting that their inability to attend to and process victimization-related stimuli was the result of a dysregulated and overwhelming negative emotional arousal.

Taken together, the results of the previous study help to understand not just the process of a single episode of victimization but the development of chronic victimization status in children. We argue that children who come to identify themselves as victims and have greater difficulty regulating their emotions in high-stress social situations are not only likely to experience greater concurrent victimization but are also more likely to be victimized in the future as well.

The next study from our laboratory (Rosen, Milich, & Harris, 2009) directly tested the victim model using a longitudinal design. Structural modeling was employed with a sample of 180 children (95 boys, 85 girls) ages 9 to 13, to assess both the concurrent and predictive relations of victim schema accessibility, emotional distress in the presence of threat, and peer victimization. Victimization was assessed at baseline and again after a six-month interval to determine the long-term effects of victim schema accessibility and activation on victimization over time. Emotion regulation was assessed with a multi-informant composite derived from scales of the Child Behavior Checklist (CBCL; Achenbach, 1991), the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), and the Reactive-Proactive Aggression Questionnaire (RPAQ; Raine, Dodge, Loeber, et al., 2006), while the victim self-concept IAT (Rosen et al., 2007) was again used to assess implicit self-identification with victimization. Emotional distress related to victimization experiences was assessed with the narrative task (Rosen et al., 2007). Parent-reported and child self-perceived victimization were assessed separately with parallel forms of the PPSS (Ladd & Kochenderfer-Ladd, 2002).

Figure 4.2 shows the structural model tested for both parent- and child-reported victimization at Time 2, controlling for victimization at Time 1. Initial testing of the longitudinal model supported the hypothesis that accessibility of the victim schema presents a significant risk factor for peer victimization. Model testing supported the fit of the proposed model for both parent-reported victimization, $\chi^2(4, N = 180) = 2.10, p > .75$; $\chi^2/\text{df} = 0.53$; CFI = 1.00; RMSEA < .001, and child self-perceived victimization, $\chi^2(4, N = 180) = 2.12, p > .70$; $\chi^2/\text{df} = 0.53$; CFI = 1.00;

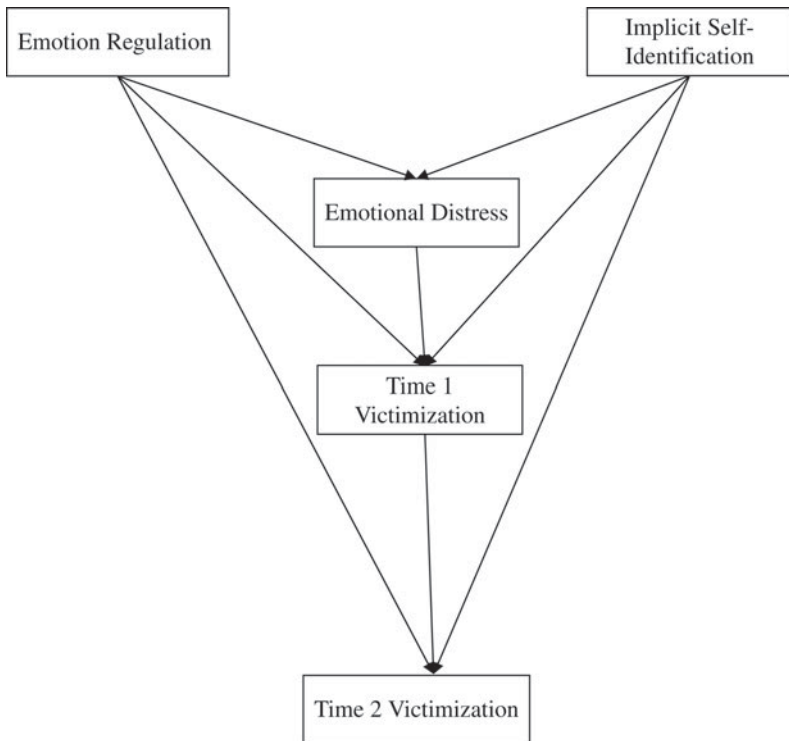


Figure 4.2 Structural model of relations of victim schema accessibility, emotional distress, and concurrent and future victimization.

RMSEA < .001, with victim schema accessibility and emotional distress predicting concurrent and future victimization. Victim schema accessibility was significantly associated with emotional distress related to victimization, as both general emotion regulation difficulties, $\beta = .17$, and implicit self-identification with victimization, $\beta = .16$, were significantly related to the degree of emotional distress demonstrated during the victim narrative task. Baseline frequency of experiencing victimization was strongly associated with victim schema accessibility, both directly with emotion regulation difficulties and indirectly through emotional distress (see Figure 4.3 for pathway coefficients). Finally, consistent with the victim schema model, children with greater emotion regulation difficulties at baseline were more likely to have experienced more frequent parent-reported peer victimization at follow-up *even after accounting for frequency of parent-reported victimization at baseline*.

Overall, the results provided support for our model of the dynamic and reciprocal influences of victim schema accessibility and

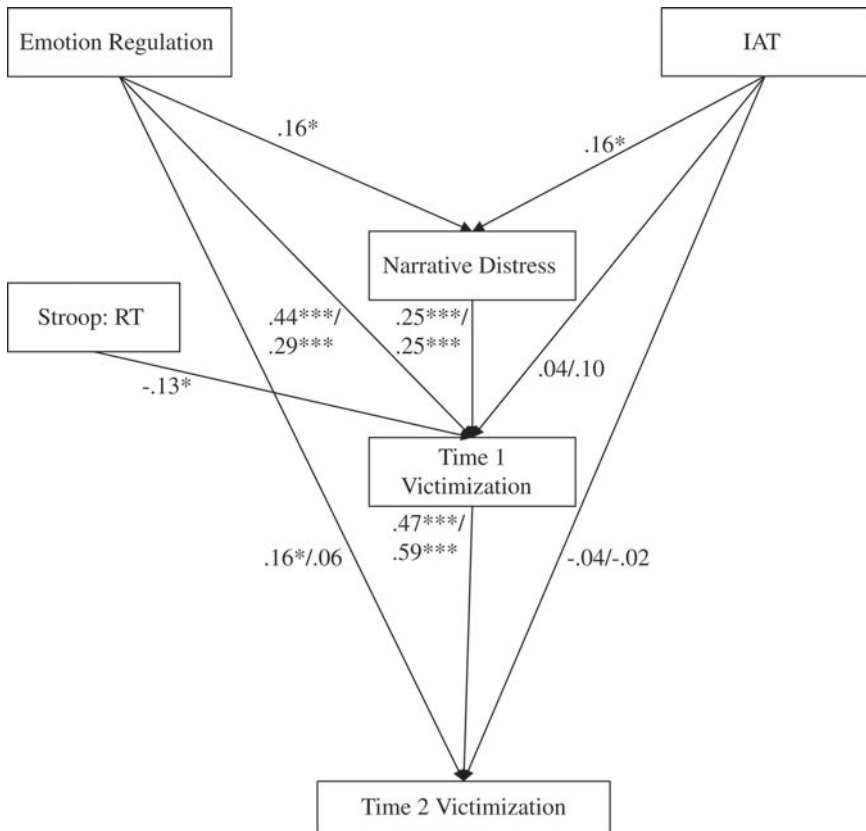


Figure 4.3 Full structural model of Time 1 and Time 2 peer victimization with standardized regression weights.

Note: Terms before/are for parent-report model; terms after/are for child-report model.

Note: Stroop→Time 2 and Narrative Distress→Time 2, $\beta < .08$, $p > .20$.

Note: Error terms for all variables were omitted from figure to make the diagram easier to read.

$N = 180$, $*p < .05$, $**p < .01$, $***p < .001$.

emotional reactivity on peer victimization in children. The finding that frequently victimized children demonstrate a distinct pattern of social-cognitive and emotional processing may help explain the chronicity and stability of certain children's victimization experiences. The more children are victimized the more likely they are to implicitly link themselves to victimization, expect to be victimized by peers, become emotionally distressed in response to perceived threat, and believe themselves incapable of effectively using assertive conflict-resolution strategies, which in turn puts them at risk for further victimization.

In particular, inability to regulate emotional intensity emerged as a powerful risk factor of both concurrent and future victimization in our studies. In addition to the “in the moment” effects of distress on social-information processing and coping, poor emotion regulation also likely increases the chances that children will be deemed acceptable targets for victimization. Numerous studies have established that children who display more negative emotion are more likely to be disliked by peers and ostracized in social settings (Eisenberg, Fabes, Guthrie, & Reiser, 2000; Maszk et al., 1999; Schwartz et al., 1998), which increases their risks of being chosen as targets for aggression (Perry, Willard, & Perry, 1990; Schuster, 2001). Emotion regulation difficulties have also been demonstrated to negatively impact children’s friendships (Smith, Shu, & Madsen, 2001), thus reducing the protective value of a key buffer against victimization (Hodges, Boivin, Vitaro, & Bukowski, 1999). Frequently victimized children thus become stuck in a cycle of increasing victim schema accessibility, poorer social relationships, and peer victimization that transcends classrooms and social environments.

IMPLICATIONS AND FUTURE DIRECTIONS

Implications for Interventions

The proposed model holds important implications for the ways in which interventions for peer victimization are developed. At present, targeted social skills interventions and universal classroom-wide programs are the most commonly used methods of addressing victimization (Bradshaw, Sawyer, & O’Brennan, 2007; Leff, 2007; Smith et al., 2001). Although such training may benefit chronic victims to some degree, results of this study indicate that an exclusively behavioral or environmental approach only targets a small portion of the chronic victim’s difficulties. The social skills training approach assumes that chronically victimized children will be able to use learned conflict resolution skills in the moment of potentially negative peer interactions. However, the victim schema model demonstrated that chronic victims experience a dysregulated emotional arousal in response to the perception of threat that may override their learned skills and lead them to automatically respond in an emotionally driven and ineffective manner.

Interventions that address children’s social-cognitive and emotional processing in addition to social skill development are more likely to help

children effectively manage their emotions and cognitions in conflict, allowing them to better utilize their social skills to achieve a positive outcome for the interaction. Techniques such as emotion recognition skill training and emotion-focused coping hold promise with a chronically victimized population as intervention techniques to help reduce emotional arousal. It is also essential that chronically victimized children learn to more effectively attend to and process threatening cues despite the presence of negative emotions. Distress tolerance training may be an important part of reducing chronically victimized children's tendencies to use avoidant and preemptive processing in the presence of negative social information and rigidly rely on an activated victim schema to guide expectations and behavior.

One possible intervention approach that may hold some promise is the use of peer interventions. The use of peer mediators and a "buddy system" has shown effectiveness at reducing peer aggression in children (Leff, 2007), which often demonstrates a high degree of overlap with peer victimization (Smith et al., 2001). Chronically victimized children may thus benefit from classroom interventions where they are paired with a nonvictimized peer "buddy" to help them "keep cool" in the moment. Use of a peer "buddy" could serve also multiple purposes of providing a buffer against victimization and providing a prosocial role model, thus reducing the environmental risk factors of social ostracism and dislike often faced by emotionally dysregulated children.

Future Directions

Initial studies assessing the victim schema model have yielded encouraging results; however, considerable work remains to be done to assess the model both over time and across populations. The Rosen et al. (2009) study was able to demonstrate a significant predictive effect of victim schema processes (i.e., emotion regulation, implicit identification) on later victimization. Initial research has focused primarily on concurrent or unidirectional prediction; however, the victim schema model specifies a reciprocal and dynamic effect of schematic processes and victimization, such that victimization strengthens schematic accessibility just as schema accessibility increases the risk of victimization. It is likely that bidirectional effects exist, such that variability in victim schema accessibility over time would be strongly associated with changes in frequency of peer victimization. Future research is needed to determine the pattern of bidirectional covariation in victimization and victim schema accessibility.

Additionally, our research to this point has focused on social cognitive processes underlying general peer victimization, collapsing across subgroups of peer victims. However, research has demonstrated considerable heterogeneity in both the manner of victimization that children experience (i.e., overt versus relational; Crick & Bigbee, 1998) and the response patterns of chronic victims (i.e., passive/submissive vs. aggressive/reactive; Schwartz, Proctor, & Chien, 2001). The victim schema model proposes that a consistent pattern of schema accessibility, response, and victimization underlies all subgroups of victimization, with variation in the environmental triggers (overt versus relational) and emotional response (anxiety vs. anger) accounting for group differences in victimization. While initial research supports this hypothesis (Crick, Grotpeter, & Bigbee, 2002), further research is necessary to assess whether the social-cognitive and socioemotional processes of the victim schema model vary according to manner of provocation or behavioral response of chronic victims.

SUMMARY AND CONCLUSIONS

This chapter has theorized that chronic peer victimization results from the reciprocal development of an easily accessible victim schema that guides children's affect and affects how they process cues and respond behaviorally to threat. Conflicts that frequently result in victimization lead children to develop implicit associations of themselves as victims, and create an expectation of victimization as a result of perceived threat. This expectation results in a strong negative emotional arousal, impeding their ability to accurately and effectively process threat and causing them to respond in a manner that puts them at risk for victimization. Victimization reinforces these expectations, making the victim schema more easily accessible. It is hoped that by identifying some of the emotional and social-cognitive processes underlying victim schema accessibility, we may be able to help chronically victimized children regulate emotion, process threat more effectively, show less distress in the presence of threat, and ultimately break the cycle of victimization.

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Aggression and Victimization

PART
III

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5

The Importance of Personality and Effortful Control Processes in Victimization

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Estimates of American children who report being repeatedly victimized by their peers have ranged from 10% to 30% (Grills & Ollendick, 2002; Nansel et al., 2001). The occurrence of peer victimization is alarming when one considers the negative psychological and physical consequences of being bullied (Kupersmidt, Coie, & Dodge, 1990; Miller & Vaillancourt, 2007). The negative outcomes of peer victimization are long-lasting; as adults, adolescents who were victimized experience more depression and lower self-esteem than those not victimized (Bagwell, Newcomb, & Bukowski, 1998; Olweus, 1978). In addition, victimized adolescents experience more frequent and severe health problems than do nonvictimized adolescents, even three years later (Greco, Freeman, & Dufton, 2007; Rigby, 2003).

CHARACTERISTICS OF PEER VICTIMS

Despite the variability in both the form that victimization may take (e.g., relational, physical, cyber-bullying) and the outcomes associated

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with victimization (e.g., psychological vs. physical outcomes), victimized children are surprisingly similar in the behavioral characteristics that they share. First, children who are bullied are more likely to have *internalizing* problems such as being more withdrawn, depressed, anxious, and avoidant of conflict (Perry, Hodges, & Egan, 2001). These internalizing problems have been further linked to poor emotional awareness and the inability to cope with anger and sadness effectively (Zeman, Shipman, & Suveg, 2002).

Second, children who are bullied are more likely to exhibit disruptive impulsive behaviors, often termed *externalizing* behaviors (Schwartz, 1999). That is, peer victims are often argumentative, often want their own way, and are more likely to respond aggressively to teasing or anger (Hodges & Perry, 1996). Externalizing problems also include such impulsive behaviors as telling lies, stealing, making inappropriate noises, bothering others, and not following rules. Such impulsive behaviors can annoy peers and increase the likelihood of being victimized.

SELF-CONTROL AND VICTIMIZATION

The relations between each of these behavioral tendencies and children's victimization status are suggestive of the importance of the ability to control oneself in social situations. In other words, poor self-control in children may be manifested in behaviors that are impulsive, inattentive in nature, inappropriately aggressive, or simply bothersome to others. In addition, poor self-control should be directly related to poor emotional regulation, especially in situations that require greater efforts to control emotion (e.g., peer conflict). This lack of cognitive, behavioral, and emotional control should impair the ability to form quality peer relationships and even put the child at risk for becoming the target of bullies.

In this chapter, we will first draw from the cognitive, social, and developmental literature to define self-control. Second, we will discuss the importance of these processes for interpersonal relationships. Third, we will consider how self-control processes and personality dimensions associated with these processes are related to victimization by presenting some preliminary findings. We will also draw from the literature on attention deficit hyperactivity disorder (ADHD) to emphasize the importance of self-control in avoiding victimization. As can be seen in Figure 5.1, we believe that children and adolescents with higher self-control should be more responsive and attentive to others' needs, less



Figure 5.1 Model of the influence of self-control on victimization.

impulsive, more planful and flexible in their problem-solving abilities, better able to control their emotions, and should respond less aggressively when provoked. As such, higher self-control should contribute to being liked by peers, to the ability to attract friends, and even to being less vulnerable to peer victimization.

SELF-CONTROL, SELF-REGULATION, AND EFFORTFUL CONTROL

Self-regulation is a construct considered important in many fields of psychology. In cognitive psychology, self-regulation is discussed in terms of the central executive (or executive function) and is often considered the most important of the components within Baddeley's (2003) working memory model. This aspect of the self governs the choices a person makes as well as the activities in which one engages. The executive function is responsible for planned and intentional behaviors such as problem solving, alternating tasks, inhibiting responses, and focusing mental attention (Baddeley, 2003; Barkley, 2001; Schmeichel & Baumeister, 2004).

Social psychologists define self-regulation as an effortful attempt to control or alter one's own response that requires the use of one's executive function (Muraven, Tice, & Baumeister, 1998; Schmeichel & Baumeister, 2004). Some social psychologists make a distinction between self-regulation and self-control. Self-control involves a more deliberate and conscious inhibition of impulses, whereas self-regulation refers to broader goal-directed behaviors (Schmeichel & Baumeister, 2004; Vohs & Baumeister, 2004). Although this distinction is important, we follow recent research in using these terms interchangeably (Vohs & Baumeister, 2004).

In developmental psychology, self-regulatory processes have often been discussed under the umbrella of effortful control (Posner & Rothbart,

2000; Rothbart & Ahadi, 1994; Rothbart & Bates, 1998). Effortful control is the ability to inhibit a dominant or common response in order to execute a subdominant or uncommon response and involves temperamental differences among children (Kochanska & Knaack, 2003; Rothbart & Bates, 1998). Effortful control has been linked to early-appearing individual differences in the ability to sustain and shift attention as well as the ability to initiate and inhibit action voluntarily (Kochanska, Murray, & Coy, 1997).

From a neuroscientific perspective, one of the brain regions primarily responsible for self-regulatory and executive functions is the prefrontal cortex (PFC; Banfield, Wyland, Macrae, Munte, & Heatherton, 2004; Luria, 1973). Self-regulation is thought to emerge with the maturation of the prefrontal cortex; this system of higher-level control appears at approximately 6 to 12 months of age and corresponds to the development of the PFC throughout the preschool years and again in adolescence (e.g., Ruff & Rothbart, 1996). While the PFC initiates these control processes, the anterior cingulate cortex (ACC) is thought to be responsible for the more intricate details of altering and adjusting the control processes (Ochsner & Gross, 2004). In this sense, the ACC is an important area associated with traditional executive functions (i.e., attention and inhibition of response). Failure of the ACC results in disorders involving a deficiency in behavioral inhibition such as obsessive-compulsive disorder and attention-deficit/hyperactivity disorder (Barkley, 2004; Banfield et al., 2004).

SELF-CONTROL AND INTERPERSONAL PROCESSES

It has been suggested that self-control has an evolutionary basis that is inherently social in nature (Barkley, 2001, 2004; Heatherton & Vohs, 1998). In other words, living in groups required the development of activities such as reciprocal altruism, the ability to imitate and learn from others, and the ability to use tools, communicate effectively, avoid social manipulation, regulate emotions, accept societal rules, and acquire self-defense skills (Barkley, 2001; Heatherton & Vohs, 1998). Each of these activities requires self-control. Self-control helps to maintain the structure of groups and prevents rejection from the group (Heatherton & Vohs, 1998).

Self-control is indeed predictive of better emotional and social competence in childhood and adolescence. For example, the ability to delay gratification in preschool predicts social competence a decade

later (e.g., Shoda, Mischel, & Peake, 1990; Yang & Wang, 2007). More specifically, greater ability to delay gratification at 4 years of age predicted greater ability to follow rules at 9 years of age (Yang & Wang, 2007). In addition, the ability of preschoolers to delay gratification has been linked to adolescent's ability to cope with frustration and stress (Shoda et al., 1990), whereas effortful control processes in infants predicted later ability to regulate anger and joy (Kochanska, Murray, & Harlan, 2000). Self-regulation is also positively related to sympathy (Valiente, Eisenberg, & Fabes, 2004), resiliency (Eisenberg et al., 1997), and social competency (Fabes, Martin, Hanish, Anders, & Madden-Derdich, 2003). Thus, self-regulatory abilities do appear to be important for interpersonal relationships in childhood and adolescence.

On the other hand, self-regulatory failure has been linked to an array of behavioral problems including poor emotional control, hostility, rule-breaking behaviors, and impulse control problems (Barkley, 1998; Baumeister, Heatherton, & Tice, 1994). For example, poor delay of gratification, a measure of self-control, is a risk factor specific to externalizing problems (Krueger, Caspi, Moffitt, White, & Stouthamer-Loeber, 1996). As stated previously, victimized children are more likely to exhibit such *externalizing* behaviors (Hodges & Perry, 1996; Schwartz, 1999). In addition, boys who are impulsive and emotionally reactive (i.e., low on self-control) see a decline in their peer status as their contact with their peers increased (Fabes, Shepard, Guthrie, & Martin, 1997).

SELF-CONTROL AND VICTIMIZATION REVISITED

However, an important question remains unanswered: Does poor self-control in children and adolescents make them more vulnerable to peer victimization? Several criminological theories (Gottfredson & Hirschi, 1990; Tittle, 1995) suggest that self-control is central to understanding the behaviors of both perpetrators and victims of crime. Most criminal acts are not completely random. Rather, the perpetrators of crime typically pick a target who is "easy" or more vulnerable (Rengert, Piquero, & Jones, 1999). In turn, low self-control is thought to lead to greater victim vulnerability. For example, because individuals lower in self-control are less planful and less able to think about the consequences of their behavior, they may be more likely to put themselves in situations that increase their risk for victimization. Moreover, individuals who are lower

on self-control may engage in certain behaviors that make them easier targets for victimization (Schreck, 1999). Recent empirical evidence offers support for these ideas. For example, in a longitudinal study of 6th- and 7th-graders, Schreck, Stewart, and Fisher (2006) found that lower self-control in earlier years predicted higher levels of crime victimization (e.g., being the victim of assault, robbery, or theft) later even after controlling for earlier levels of victimization. Interestingly, adolescents higher in self-control who were victimized at time 1 were not as likely to be victimized at time 3 as were adolescents low in self-control who were victimized at time 1 (Schreck et al., 2006).

Borrowing from these theories, we suggest that children who are lower in self-control may also find themselves in certain situations or engage in certain behaviors that increase the likelihood of being victimized. For example, impulsive, externalizing behaviors are thought to irritate and provoke peers (e.g., Hodges, Malone, & Perry, 1997). Given these children may aggravate others, bullies may be more likely to target these children. This is not meant to blame the victim; rather, we are suggesting that poor self-control is an important risk factor associated with peer victimization.

Behavior problems that make children more vulnerable to peer victimization are greatest when children lack supportive friends or are low on peer acceptance (Hodges, Malone, & Perry, 1997). For example, children with at least one high-quality friend are less likely to be victimized, especially when general peer acceptance is low (Waldrip, Malcolm, & Jensen-Campbell, *in press*). However, initiating and developing supportive friendships also requires self-control. That is, self-control promotes interpersonal relationships across the range of group size from closer dyadic relationships such as friendships to larger group interactions such as general peer-acceptance (e.g., Heatherton & Vohs, 1998). Indeed, children lower in conscientiousness, a personality trait associated with self-control, have fewer friends, less peer acceptance, and lower-quality friendships (Jensen-Campbell & Malcolm, 2007). As such, children lower in self-control will most likely have limited support from others when it may be most needed to protect them from bullying. For example, bystanders who witness bullying may be less likely to intervene for victims whom they find annoying or bothersome.

Self-control may even act as an important buffer against victimization if the child is otherwise at risk. Greater behavioral and cognitive control capacities may allow the child to shift and focus attention when needed,

which allows the child to compensate for other weaknesses (e.g., the tendency to be anxious). For example, anxious children who are higher on self-control may be better able to visibly mask distress when in an emotional confrontation with a peer than children who are lower on self-control. Indeed, neurotic individuals are more likely to display negative emotion and aggressive behavior in difficult interpersonal situations but only when their self-control was also low (Ode, Robinson, & Wilkowski, 2008). In addition, young preschool and elementary school children who are higher on negative emotionality only had adjustment issues when levels of constraint were also low (Belsky, Friedman, & Hsieh, 2001; Eisenberg, Fabes, Guthrie, & Resier, 2000).

Finally, Jensen-Campbell and Malcolm (2007) found that the association between internalizing problems and victimization was decoupled when conscientiousness was high. We believe low-conscientious children do not have (or effectively utilize) self-regulatory skills needed for positive interpersonal relationships, whereas conscientious persons are better able to self-regulate their emotional responses. For example, a victim's internalizing orientation is thought to be related to poor emotional awareness and the inability to cope with anger and sadness effectively (Zemen et al., 2002). Being high on self-control may compensate for these poor emotional reactions associated with internalizing when in a difficult social interaction.

SELF-CONTROL AND ITS RELATION TO VICTIMIZATION: PRELIMINARY EVIDENCE

Although the association between self-control and interpersonal relationships has been well-documented, there is little empirical evidence directly linking general self-control to peer victimization. As such, we wanted to specifically examine whether general self-control processes were related to personality, internalizing and externalizing problems, and victimization. Eighty-two 5th–7th grade students and a parent took part in a 2.5-hour experimental session as part of a larger study on self-control in adolescence at the University of Texas at Arlington (Jensen-Campbell, 2008). The sample included 44 boys and 38 girls between the ages of 10 and 13 ($M = 11.23$; $SD = 0.67$). During the session, the parent completed questionnaires while the adolescent completed several traditional measures of self-control (i.e., Wisconsin Card Sorting Task; WCST, Stroop, Go/No-Go). Two WCST measures were used in

this study, namely failure to maintain set and learning to learn. Failure to maintain set involves the loss of the correct sorting principle while completing the task. Learning to learn involves how efficient an individual is in successfully learning how to complete the task. Two Stroop measures used in this study included number of incongruent responses correct (controlling for congruent responses correct) and the reaction time (RT) for completing incongruent responses (controlling for congruent RT). Self-control was assessed in the Go/NoGo by the RT variability for congruent (Go) responses.

After completing these tasks, children were then asked to complete measures of personality and victimization. Both parents and child-participants completed the Child Self-Experiences Questionnaire (CSEQ; Crick & Grotpeter, 1995) and the Big Five Inventory (BFI; Benet-Martinez & John, 1998). The CSEQ consists of three subscales that assess physical and relational victimization as well as being the target of prosocial help. Finally, parents completed the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) which assesses poor self-control (i.e., attention problems), externalizing problems, and internalizing problems.

Our behavioral measures of self-control did converge with parental reports of attention problems. Children whose parents reported that they had attention difficulties performed more poorly on the traditional laboratory assessments of self-control. General poor self-control was also related to both internalizing problems and externalizing problems (see Table 5.1). More importantly, poor self-control was related to both relational and physical forms of victimization. We then examined whether certain behaviors often seen as representing poor impulse control (e.g., externalizing problems) carry some of the influence of general self-control to peer victimization. As can be seen in Figure 5.2, the influence of self-control on victimization was significantly reduced when internalizing and externalizing problems were in the model. The overall indirect path was significant in both models, suggesting that internalizing and externalizing problems do mediate the association between self-control and victimization. More interesting is the finding that externalizing problems uniquely mediated this association for both types of victimization. However, internalizing problems was not a unique mediator. This finding is consistent with our previous findings that the association between conscientiousness and victimization was mediated by externalizing problems and not internalizing problems (Jensen-Campbell & Malcolm, 2007).

Table 5.1

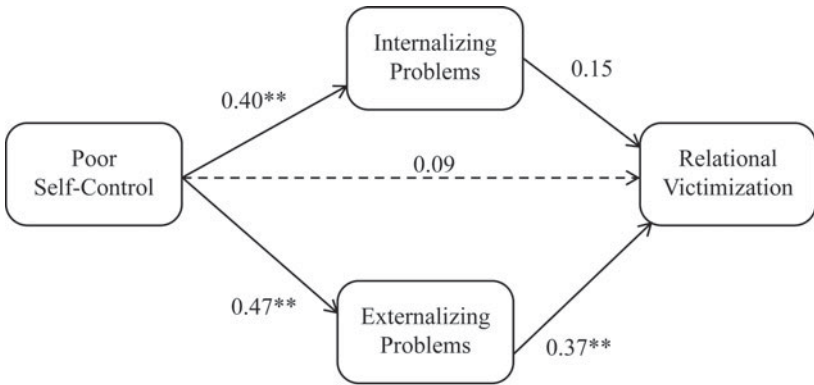
SELF-CONTROL AND ITS RELATION TO INTERNALIZING AND EXTERNALIZING PROBLEMS AND VICTIMIZATION

OUTCOME MEASURES	POOR SELF-CONTROL (BEHAVIORAL)	ATTENTION PROBLEMS (BASC)
Externalizing problems	0.46**	0.40**
Aggression	0.36**	0.29**
Atypicality	0.48**	0.37**
Conduct problems	0.40**	0.38**
Hyperactivity	0.34**	0.32**
Internalizing problems	0.37**	0.24**
Depression	0.49**	0.39**
Anxiety	0.27**	0.22**
Somatization	0.29**	0.10
Withdrawal	0.01	0.03
Physical victimization	0.42**	0.14
Child report	0.26*	0.07
Parent report	0.41**	0.13
Relational victimization	0.32**	0.24**
Child report	0.22*	0.15
Parent report	0.33**	0.26*

p* < 0.05, *p* < 0.01. Bold font signifies combined measures.

Finally, we examined whether self-control moderated the link between internalizing problems and victimization (see Figure 5.3). There was no evidence that self-control moderated the link between internalizing problems and physical victimization. However, self-control did moderate the link between internalizing problems and relational victimization. As anticipated, when self-control was low, internalizing problems were strongly related to relational victimization. When self-control was high, the relationship between internalizing problems and victimization was decoupled.

The substantive message here is that poor self-control is associated in important ways to peer victimization. Children who have poor



$F(3, 70) = 8.24, p < .01, R^2 = .26$

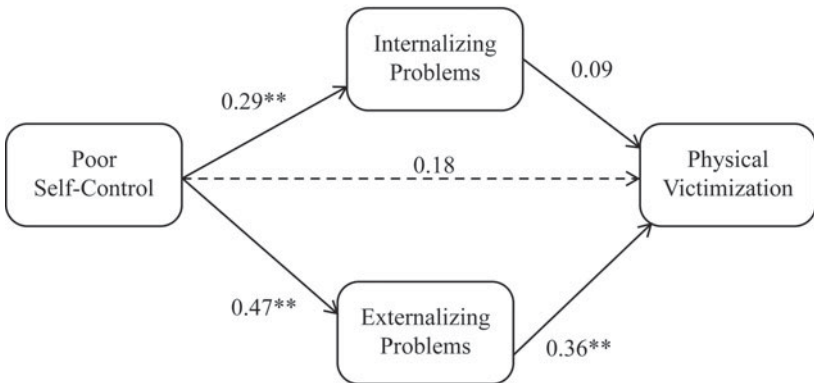


Figure 5.2 The influence of self-control on relational and physical victimization. $F(3, 70) = 9.36, p < .01, R^2 = .29, **p < .01$.

self-control are more likely to exhibit externalizing problems. These externalizing problems in turn increase the likelihood that the child will become the target of bullies. As discussed above, we suspect that externalizing problems may annoy other children, thereby provoking bullying. In addition, self-control appears to help children control their internalizing problems to such a degree that they can avoid becoming the victims of bullies because they are better able to control their emotional reactions (e.g., crying, poor inhibition of negative emotions).

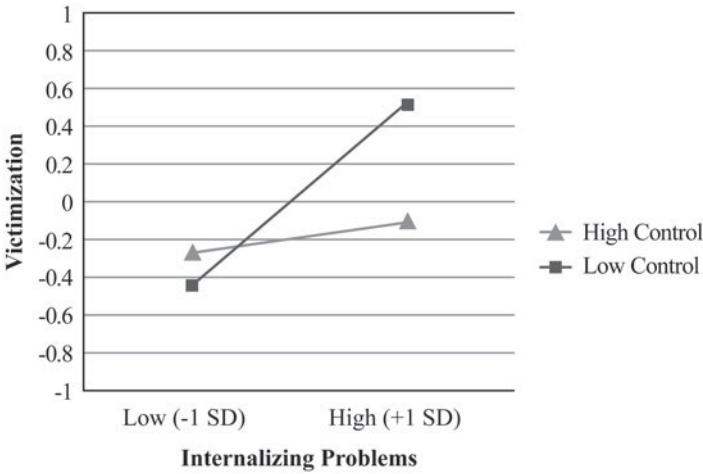


Figure 5.3 The influence of internalizing problems on relational victimization at levels of self-control.

PERSONALITY AND VICTIMIZATION

Certain adult personality characteristics are thought to develop from temperamental effortful control. In particular, the Big Five personality characteristics of conscientiousness and agreeableness have been well-documented as having developmental roots in effortful control (e.g., Jensen-Campbell et al., 2002; Jensen-Campbell & Malcolm, 2007; Rothbart & Bates, 1998; Shiner & Caspi, 2003). The temperamental component of impulsivity loads onto the Big Five personality characteristic of conscientiousness, whereas anger regulation maps onto the Big Five personality characteristic of agreeableness (Rothbart & Bates, 1998). Conscientiousness is typically marked by persistence, planfulness, goal-directed behavior, and attention to details, whereas agreeableness is often marked by cooperation, considerateness, and kindness. Each of these Big Five characteristics is associated with positive emotions and prosocial behaviors and negatively associated with negative emotions and impulsivity (e.g., Jensen-Campbell et al., 2002). In addition, early ability to delay gratification predicts parental reports of higher conscientiousness (Krueger et al., 1996; Shoda et al., 1990).

Conscientiousness has direct links with interpersonal relationships. Conscientious adolescents have higher quantity and quality friendships as well as greater overall peer acceptance (Jensen-Campbell & Malcolm, 2007). Tani, Greenman, Schneider, and Fregoso (2003) found that

teacher-rated victims were lower on conscientiousness than either victim defenders or outsiders. Indeed, lower levels of conscientiousness are related to greater anger, more negative affect during conflict, and less forgiveness. These interpersonal behaviors are related to greater levels of victimization (Bollmer, Harris, & Milich, 2006).

The link between conscientiousness and victimization was also found to be mediated by behavioral problems linked with self-regulatory failure, namely externalizing problems and attention problems (Jensen-Campbell & Malcolm, 2007). Children who were lower in conscientiousness were more likely to exhibit externalizing and attention problems, which in turn led to greater levels of victimization. Interestingly, being conscientious also buffered against the negative outcomes associated with internalizing problems (e.g., depression, loneliness). As such, conscientiousness can be viewed as a useful predictor of which persons will be victimized by peers (e.g., Jensen-Campbell & Malcolm, 2007).

Agreeableness is also associated with positive interpersonal relationships. Agreeable individuals are better able to control their anger, are less likely to be aggressive or bully others, and are less likely to be involved in antisocial behavior (Gleason, Jensen-Campbell, & Richardson, 2004; Robins, John, & Caspi, 1994). Agreeable people also work harder to suppress negative emotions during social interactions (Tobin, Graziano, Vanman, & Tassinari, 2000) and genuinely like other people more (Graziano, Jensen-Campbell, & Hair, 1996). As such, it should be no surprise that being agreeable is associated with the number and quality of social relationships as well as overall acceptance from peers (Asendorpf & Wilpers, 1998; Jensen-Campbell & Malcolm, 2007). Being agreeable has even been associated with decreases in victimization over a school year (Jensen-Campbell et al., 2002). Conversely, children lower on agreeableness and conscientiousness are more likely to be neglected and maltreated by their parents than children who are higher on these attributes (Rogosch & Cicchetti, 2004). These findings provide evidence that personality characteristics may play a causal role in the experience of victimization.

Although Jensen-Campbell and Malcolm (2007) found that externalizing problems and attention problems mediated the link between personality and victimization, they did not directly assess self-control. Thus, we examined whether general self-control mediated the link between personality and victimization using our sample of 82 children discussed earlier. As can be seen in Figure 5.4, self-control did at least partially mediate the relationship between personality and victimization. More specifically, self-control mediated the association between

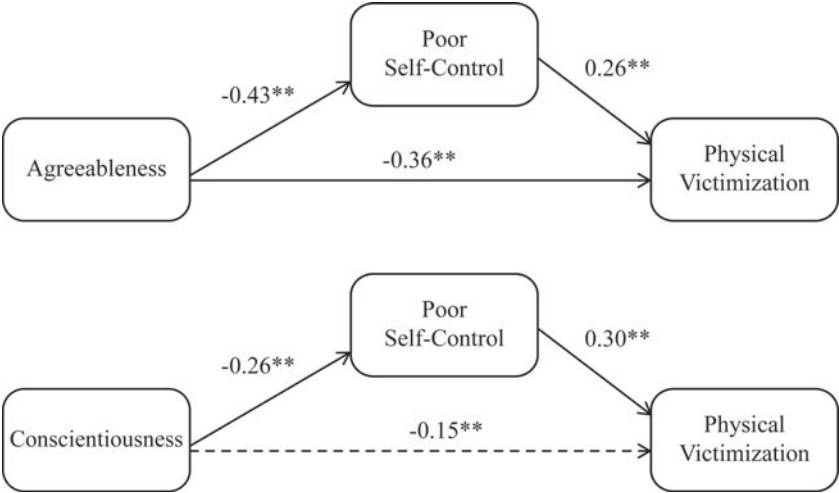


Figure 5.4 The influence of personality on physical victimization.
** $p < .01$.

conscientiousness and victimization. However, agreeableness continued to have a direct significant path to victimization even after controlling for general self-control. Although there was a significant indirect effect via self-control, there was also a direct effect associated with agreeableness. Children higher in agreeableness were less likely to be victimized and this decrease in victimization was not due entirely to better self-control abilities. Part of this direct relationship could be due to the fact that agreeable people like other people more than do persons lower in agreeableness (Graziano, Jensen-Campbell, & Hair, 1996; Jensen-Campbell & Graziano, 2001). The importance of this point for victimization is that even aggressive children may avoid attacking children whom they believe like them (Jensen-Campbell et al., 2002).

**ATTENTION-DEFICIT/HYPERACTIVITY DISORDER
AND VICTIMIZATION**

Given that attention-deficit/hyperactivity disorder (ADHD) is a disorder that involves a deficiency in self-regulatory ability (Barkley, 2001, 2004), specifically problems with inhibition, examining the literature on ADHD may provide further insight into the importance of self-control for buffering against peer victimization. For example, Crundwell (2005) found that as the severity of symptoms of ADHD increased, the child's

level of self-regulation decreased. Children with ADHD are also more likely to have comorbid conditions such as externalizing (35%–60%) and internalizing problems (18%–60%; Furman, 2005).

Children with ADHD experience a multitude of peer difficulties. For example, children with ADHD were chosen more as a nonfriend (as opposed to a desired friend) by those who were rated as the popular children (Hoza et al., 2005). Furthermore, Hoza and colleagues found that more children with ADHD failed to report a mutual dyadic best friendship (i.e., 56%) than did children without ADHD (i.e., 32%). Children with ADHD were more likely to be peer nominated as being rejected by peers (i.e., 52%) than were children without ADHD (i.e., 14%). No gender effects were found, which suggests that both boys and girls with self-regulatory deficits are equally susceptible to experiencing peer rejection and social difficulties. These effects were found for children as young as 7 years old (Hoza et al., 2005).

Humphrey, Storch, and Geffken (2007) found that children with a comorbid diagnosis (e.g., ADHD *and* externalizing problems or ADHD *and* internalizing problems) were more likely to be victimized by their peers than children with only ADHD or children without ADHD. Children with the highest rates of victimization were those children who were diagnosed with both ADHD *and* externalizing problems. This finding matches our work in that when poor self-control is manifested in externalizing problems, it increases the likelihood of being victimized by one's peers.

Indeed, many of the social problems and difficulties children with ADHD experience are directly related to effortful control processes (Martel & Nigg, 2006). For example, children with ADHD are unable to effectively regulate negative emotions (e.g., frustration) and express negative comments and thoughts (Cole, Zahn-Waxler, & Smith, 1994; Pelham & Bender, 1982). Taken together, the above evidence suggests that poor self-regulatory ability may help explain why some children experience such alarming levels of peer rejection and victimization. Namely, these children are unable to attend to social cues, monitor their own behavior, and inhibit inappropriate behaviors making them greater targets for bullying and rejection (Crundwell, 2005).

DOES VICTIMIZATION IMPAIR SELF-CONTROL?

Clearly, the predicted direction of effect from the children's self-control to their childhood experiences of victimization can be concep-

tualized differently than it is here. Indeed, experiencing certain types of victimization can lead to deficits in self-regulation (e.g., Baumeister, Twenge, & Ciarocco, 2002). For example, Baumeister, DeWall, Ciarocco, and Twenge (2005) conducted a series of six experiments examining whether social exclusion impairs self-regulatory ability. They found that excluded persons had more self-regulatory failure such that they consumed less of a healthy (but bad tasting) beverage (study 1), ate more cookies (study 2), and were less able to persist during a frustrating task (study 3). Furthermore, excluded persons made more errors during a dichotic listening task suggesting that being rejected impairs one's ability to shift and control attention (studies 4–6). Excluded persons who do not have any reminder of their social connections are more aggressive than excluded persons who have a friendly interaction with the experimenter (study 1) or write about a close other or celebrity (studies 3 and 4; Twenge et al., 2007). In addition, being excluded also reduces prosocial behavior such as giving money to a fund raiser, volunteering to help the experimenter with an additional project, and cooperation (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007).

We recently examined whether simply writing about a previous episode of victimization (e.g., ostracism) influenced self-control compared to remembering a time when one was hurt physically (not involving victimization). We found that merely recalling a socially painful experience involving victimization/rejection as compared to a physically painful experience predicted more current reports of pain, which in turn predicted more errors in a subsequent Stroop task, greater rumination, and increased cookie consumption (Knack, 2006). These findings suggest that simply thinking about being victimized in the past increases feelings of pain, which in turn reduces self-regulatory abilities.

In addition to behavioral differences between persons excluded from versus included in peer groups, there is evidence that brain activity is also altered by social exclusion (Campbell et al., 2006). Specifically, socially excluded participants showed lower activation in the occipital cortex, parietal cortex, and right prefrontal cortex than did participants who were not socially excluded. These brain regions are involved in self-regulation and attentional processes; activation in these regions mediated the link between social exclusion and self-control (e.g., Campbell et al., 2006). Thus, being victimized not only alters behavioral responses but also alters brain functioning linked with self-regulatory processes.

CONCLUDING REMARKS

In this chapter, we argued that poor self-regulatory ability in children plays a central role in perpetuating peer victimization. We provided evidence that children with lower self-control have more externalizing problems than children with higher levels of self-control. These externalizing problems, in turn, mediate the link between self-control processes and relational *and* physical peer victimization. On the other hand, we provided evidence that better self-control allows the child to compensate for internalizing problems, which in turn weakens the known relationship between internalizing problems and peer victimization. We demonstrated that children and adolescents with ADHD are more likely to have externalizing problems, which in turn increases the likelihood of being victimized by peers.

Additionally we established that conscientiousness is a unique predictor of peer victimization and that the link between conscientiousness and peer victimization is mediated by self-control processes. We also showed that while agreeable children are less likely to be victimized, this link cannot be solely explained by self-control processes. Finally, we addressed the bidirectionality of the link between self-control and victimization, showing that being a target of peer victimization appears to contribute to the very symptoms that may have singled one out as a target of peer victimization. Combined, these findings suggest that poor self-control is a significant factor in a vicious cycle that brings about and reinforces a child's peer victimization status.

Our results suggest that teachers, parents, and clinicians may be able to identify potential bullies and victims at an early age. Children with self-control problems are at risk of developing externalizing problems, which increases the likelihood of peer victimization. Likewise, children who evidence internalizing problems and poor self-control may also be more likely targets for bullies. Future research should examine how personality may buffer against the negative outcomes associated with poor self-control and victimization. In addition, longitudinal studies are needed to more fully examine the bidirectionality of the link between personality, self-control, and victimization. Our findings, however, underscore the need to adequately assess the long-term influence of self-control on peer victimization and the possible mechanisms underlying these connections so that the association between poor self-control and victimization can be potentially disrupted.

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6

A Person $\times$ Situation Approach to Understanding Aggressive Behavior and Underlying Aggressogenic Thought

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AND CHRISTINA SALMIVALLI

Aggression is a common problem that negatively impacts aggressors and their victims. Prevalence estimates of aggression and victimization vary widely across studies due to different measurement strategies (e.g., self-reports vs. observations) and criteria for classification (e.g., many studies define a child as a victim if the child is targeted once a week or more, but others consider entire school years). Despite this variability across studies, it appears that about 10%–20% of children and adolescents can be considered frequent aggressors (aggressing about once a week or more), 10%–20% can be considered frequent victims (being victimized once a week or more), and 5%–10% can be considered both aggressors and victims (sometimes called aggressive-victims). These prevalence estimates are remarkably consistent across countries, so it appears that aggression is a problem among schoolchildren worldwide (e.g., Dodge, Coie, Pettit, & Price, 1990; Smith et al., 1998).

CONSEQUENCES OF BEING VICTIMIZED BY PEERS

Several short-term longitudinal studies show that the experience of being victimized by peers is linked to increasing maladjustment at both the personal and interpersonal level. One of the most widely found

maladjustment outcomes for victimized children is an increase in internalizing behaviors such as anxiety, depression, and withdrawal (Boivin, Hymel, & Bukowski, 1995; Hodges, Boivin, Vitaro, & Bukowski, 1999; Hodges & Perry, 1999; Kochenderfer & Ladd, 1996; Ladd & Troop-Gordon, 2003). Victimization also forecasts drops in self-esteem (e.g., Egan & Perry, 1998) and increasingly negative views of peers (Salmivalli & Isaacs, 2005). Longer-term longitudinal studies (Isaacs, Hodges, & Salmivalli, 2008; Olweus, 1994) following adolescents to young adulthood (8–10 year time-span) indicate that these maladjustment consequences continue to impact victims even when they move, presumably, into new contexts (i.e., they leave high school), particularly when perceived family support is low (Isaacs et al., 2008).

At the interpersonal level, victimized children are likely to evidence a deterioration in their relationships with peers at both the group and dyadic level. At the group level, short-term longitudinal studies indicate that the experience of abuse by peers is linked to decreases in acceptance (the degree to which peers, in general, like the child) and increases in peer rejection (the degree to which peers, in general, dislike the child) over time (e.g., Boulton, 1999; Boivin et al., 1995; Hodges & Perry, 1999; Ladd & Troop-Gordon, 2003). At the dyadic level, victimized children are likely to show a decrease in the number of friendships (e.g., Hodges & Perry, 1999; Ladd, Kochenderfer, & Coleman, 1997). The loss of friends may be due to former friends' desire to distance themselves from the targeted child (e.g., due to fear of becoming a target of victimization as well). Alternatively, low-quality friendships may make the maintenance of mutual positive ties between victimized and other children less likely over time.

ANTECEDENTS OF PEER VICTIMIZATION

Considerable attention has been devoted to understanding the proximal personal and interpersonal characteristics that place children at risk for being victimized by peers. The focus of this research has often been on factors that are, presumably, likely to reinforce (e.g., through submission or provision of social and tangible rewards) and/or irritate aggressors. Indeed, short-term longitudinal research has indicated that physical weakness places children at increased risk for being victimized (e.g., Hodges & Perry, 1999; Lagerspetz, Björkqvist, Berts, & King, 1982; Olweus, 1978). In addition, internalizing symptoms are not only

outcomes of being victimized but also lead to increases in victimization (e.g., Boivin et al., 1995; Egan & Perry, 1998; Hodges et al., 1999; Hodges & Perry, 1999; Salmivalli & Isaacs, 2005). This may be because children with internalizing problems are seen as easy targets by potential aggressors, reward aggressors with signs of suffering, and have less support from peers (see below). Because internalizing problems are both antecedents and consequences of peer victimization, it may be the case that the emergence of either can lead to a vicious cycle of maladjustment and abuse (Hodges & Perry, 1999). Similarly, low self-worth, perhaps because it translates into submissive behaviors, has also been linked to increases in victimization (Egan & Perry, 1998).

The longitudinal evidence relating externalizing behaviors to peer victimization is mixed, but there is evidence that hyperactivity and emotional dysregulation lead to increases in victimization (Pope & Bierman, 1999; Salmivalli & Helteenvuori, 2007; Shields & Cicchetti, 2001). These behaviors are likely to annoy peers and provoke potential aggressors. On the other hand, prosocial behaviors, such as helping others and sharing, appear to protect children from experiencing victimization (Egan & Perry, 1998). Related socially competent behaviors, such as adaptive conflict management and assertiveness, may also be related to lower probability of being victimized (e.g., Schwartz, Dodge, & Coie, 1993), though these have not been as extensively studied as other behaviors (for family and other contextual correlates of victimization, see Card & Hodges, 2008; Card, Isaacs, & Hodges, 2007; Perry, Hodges, & Egan, 2001; Rodkin & Hodges, 2003).

Many of the group and dyadic interpersonal level outcomes of victimization reviewed earlier have also been found to place children at increased risk for continued victimization. At the group level, children who are low in acceptance and high in rejection are likely to increasingly experience victimization over time (e.g., Boulton, 1999; Hanish & Guerra, 2000; Hodges et al., 1999; Hodges & Perry, 1999; Ladd et al., 1997; Ladd & Troop-Gordon, 2003). Children who are rejected (and not well liked) by their peers are likely seen as easy targets by aggressors, and aggressors may expect, and perhaps receive, reinforcement (e.g., peers laughing or cheering on attacks), or at least little punishment, for targeting these low-status children. At the dyadic level, research has consistently indicated that children with friends are less victimized than children without friends (e.g., Boulton, Trueman, Chau, Whitehand, & Amatya, 1999; Hodges et al., 1999; Hodges, Malone, & Perry, 1997; Hodges & Perry, 1999; Ladd et al., 1997; Pellegrini, Bartini, & Brooks,

1999; Salmivalli, Huttunen, & Lagerspetz, 1997). As for low group-level status, having no or few friends is both a risk factor (Boulton et al., 1999; Hodges et al., 1999; c.f., Hodges & Perry, 1999; Ladd et al., 1997) and a consequence (c.f., Hodges & Perry, 1999; Ladd et al., 1997) of peer victimization. Friendships may reduce victimization because they provide protection from potential aggressors. However, not all friends are equal. Having friends with certain characteristics (e.g., physically strong, accepted among peers) can protect children from victimization. Unfortunately, the friends of victimized children tend to also be victimized, have personal and interpersonal risk factors, and are unwilling or unable to offer protection (Haselager, Hartup, van Lieshout, & Riksen-Walraven, 1998; Hodges et al., 1997, 1999; La Greca & Harrison, 2005; Salmivalli et al., 1997).

Concurrent studies also indicate that victimized children have a greater number of mutual antipathies (defined as relationships characterized by mutual dislike) than nonvictimized children (e.g., Abecassis, Hartup, Haselager, Scholte, & van Lieshout, 2002; Card & Hodges, 2007; Schwartz, Hopmeyer-Gordon, Toblin, & Abou-ezzedine, 2003). Moreover, children are more likely to be victimized when their mutual antipathies have characteristics (are aggressive, physically strong, do not suffer internalizing problems, and are not themselves victimized) that are likely to enhance their effectiveness in delivering aggression (Card & Hodges, 2007; for an emerging literature on mutual antipathies, see Hodges & Card, 2003).

IMPLICATIONS OF VICTIMIZATION LITERATURE FOR UNDERSTANDING AGGRESSIVE BEHAVIOR

The review of prevalence estimates for aggression and victimization and the proximal personal and interpersonal antecedents of victimization highlight two important issues for furthering our understanding of aggression. First, the fact that, in the peer group, a minority of children are aggressive and a minority of children are victimized suggests that aggressors are quite selective in terms of whom they aggress against (i.e., their acts are not randomly distributed across the peer group). Second, aggressors presumably differentiate their targets on the basis of their evaluations (i.e., social-cognitive) regarding possible targets' personal and interpersonal vulnerabilities. For example, when choosing a target, an aggressor is likely to make different judgments about his or her abilities

to aggress against Child A who is strong and has many friends compared to Child B who is physically weak and has few friends. Such judgments are likely, in turn, to influence the probability of the aggressor targeting Child B versus Child A.

This sort of differential selection of targets by aggressors is consistent with several contemporary person $\times$ situation views of social behavior and personality (Andersen & Chen, 2002; Cervone, 2004; Mischel & Shoda, 1995; Reis, Collins, & Berscheid, 2000). The central theme of these theories is that people often behave quite differently depending upon the situation (or context) they are in. If assessed at all, this variation in behaviors is often studied across different settings (e.g., school vs. home) but situations can also refer to different interaction or relationship partners. Unfortunately, at least in the naturalistic school context, aggressive behavior is overwhelmingly conceptualized (and assessed) by researchers as a trait-like personality characteristic with some individuals seen as more aggressive across contexts (or interaction partners) whereas others are seen as less aggressive across contexts.

STUDYING AGGRESSION TOWARDS EACH INTERACTION (OR RELATIONSHIP) PARTNER

An exception to this general lack of attempts to understand how aggression may be influenced by the relationship between two individuals (e.g., the aggressor and the victim) has been a series of laboratory-based studies. This effort was initially pursued by Dodge, Price, Coie, and Christopoulos (1990), who observed groups comprised of unacquainted 1st- or 3rd-grade African-American boys interacting in laboratory playgroups. They found that about half of all aggressive acts occurred within just 20% of the dyads, indicating that certain dyadic pairs of children were more likely to contain aggression than others. This finding was not simply a result of low aggressive children behaving discriminatively among their peers. For the top third of aggressors, 46% of their aggressive acts were still targeted within 20% of their dyadic interactions. Moreover, aggression within dyadic pairs was modestly stable across daily play sessions, supporting a view that this aggressor-victim interaction is maintained as a stable relationship feature. This study was innovative in identifying the importance of dyadic relationships in the occurrence of aggression but was limited by the use of a non-representative sample (overrepresentation of rejected boys) where the boys had no prior relationship history (i.e., they were unacquainted with

each other) and the failure to use data analytic techniques that separate individual and dyadic effects (e.g., Social Relations Modeling or SRM).

To overcome these limitations, Coie et al. (1999) observed occurrences of aggression among 3rd-grade African-American acquainted boys (i.e., from the same classroom) interacting in laboratory-based play groups. Specifically, they selected 2 boys who were mutually aggressive toward each other in the school context (based on a peer-rating technique to identify aggressive dyads to be described later) as well as 4 other boys from the same classroom. Using data from 5 daily playgroup sessions, SRM was used to partition variance into actor (aggressor), partner (victim), relationship, and error components. Of the reliable variance in total aggression, they found that 26% was due to actor variance (i.e., interindividual variability in the tendency to enact aggression across different interaction partners), 36% was due to partner variance (i.e., interindividual variability in receiving aggression from different interaction partners), and 38% was due to relationship variance (i.e., interdyadic variability). The authors concluded that specific dyadic relationships of aggression are at least as important for consideration as the traditional focus on individual differences.

One hindrance to studying aggressive behavior enacted towards different interaction partners, particularly within the naturalistic school context, is a lack of suitable cost-effective methods for assessing target-specific behavior. Of course, behavioral observations can capture the degree to which aggression is directed differentially across interaction partners, but its use can be prohibitively expensive outside the laboratory. We review below some alternative methods for capturing target-specific aggressive behaviors.

As mentioned above, Coie et al. (1999) utilized a peer-rating technique to identify mutually aggressive dyads for participation in their small playgroups. In this procedure, children were given a roster of all possible dyads from their same-sex peers in their classroom. For each dyad, children (and the teacher) were asked to rate on a 5-point scale the degree to which Child A started fights with Child B and the degree to which Child B started fights with Child A. As each of the 11 classrooms contained 10 to 17 boys, the number of dyads to be rated ranged between 45 and 136. One can see how task requirements quickly increase with larger classrooms (for larger classrooms, one solution that Coie et al. implemented was to randomly select a number of dyads for each child to rate on aggression in order to minimize time required to complete assessments). Summary scores for dyadic aggression were

obtained by aggregating over multiple respondents (i.e., all the peers and one teacher). These scores were then validated against the frequencies of aggression observed in the dyads in the laboratory play session.

We believe that the peer-rating technique for assessing dyadic-specific aggression holds great promise. It would have been informative, however, if Coie et al. (1999) had also evaluated the relative proportion of variance in dyadic aggression due to actors, partners, and relationships for all the children at school and compared those estimates to those derived from the behavioral observations conducted in the play groups in order to ensure that the way that the small play-groups were formed did not “pull” for relationship variance. In addition, information regarding the validity of this instrument for girls is still needed. One improvement that could also be made would be to include several items measuring a variety of aggressive behaviors (e.g., physical, verbal, indirect/relational) rather than utilizing a single item asking who starts fights with whom. Unfortunately, the task requirements are also high when class sizes become large.

In order to facilitate the study of aggressor-victim relationships in the middle school context, Card and Hodges (in press) developed an alternative measurement approach (named the Dyadic Aggression and Victimization Inventory or DAVI) to observations and the peer-rating technique described above. In this method, 6th- and 7th-grade boys and girls were given a roster of all their same-sex peers and asked to identify the victims of their own aggression (target-specific aggression) and the aggressors who victimize them (source-specific victimization). Items assessing *directed aggression* were adapted from various measures of general aggression by modifying the target-aspecific wording in prior research (e.g., “How much do you hit and push others?”) to ascertain the identity of participants’ targets for aggression. Specifically, participants were asked to identify their targets for aggression via 7 items: “I make fun of her”; “I hit or push her around”; “I pick on her”; “I fight with her because she makes me angry”; “When she teases me, I strike back”; “I threaten and bully her”; and “I start fights with her” (boys’ and girls’ forms differed only in the inclusion of appropriate pronouns). As mentioned, participants were asked to check the name of any peer (unlimited number of nominations) toward whom they engaged in these behaviors.

Items assessing *received victimization* were similarly adapted from previous (source aspecific) scales in order to explicitly assess the sources

of victimization. The 7 items of this scale were: “He makes fun of me”; “He pushes me around or hits me”; “He is just plain mean to me”; “He fights with me because I make him angry”; “If I tease him, he strikes back at me”; “He threatens and bullies me”; and “He starts fights with me” (again, boys’ and girls’ forms differed in the inclusion of appropriate pronouns).

For the directed aggression scale, three internally reliable indexes utilizing the 7 target-specific items were derived from the aggressor’s point of view through SRM (for details on computing internal reliability estimates for actors, partners, and relationships, see Card and Hodges, *in press*): (a) individual differences in aggressing against many or few peers (actor effect); (b) individual differences in being aggressed against (i.e., victimized) by many or few peers (partner effect); and (c) targeting specific peers (relationship effect). Similarly, for the received victimization scale, three additional internally reliable indexes were derived from the victim’s point of view: (a) individual differences in tendencies to be victimized by many or few peers (actor effect); (b) individual differences in being identified as a source (i.e., aggressor) of many or few peers’ victimization (partner effect); and, (c) being victimized by specific peers (relationship effect).

The validity of the directed aggression and received victimization scales were evaluated in 2 ways. First, each measure yields a corresponding estimate of each variance component of aggression: individual differences in aggression (actor effects for directed aggression and partner effects of received victimization—for example, children who report aggressing against many targets tend to also be frequently nominated as sources of victimization by the victims themselves), individual differences in victimization (partner effects of directed aggression and actor effects of received victimization) and relationship effects. As one would expect, these correlations among parallel estimates of each variance component were significantly positively related. In addition, the individual difference components from each scale were correlated with general (source aspecific) measures of aggression and victimization assessed via self- and peer-reports.

Variance partitioning of the DAVI scales yielded somewhat similar results as compared to Coie et al. (1999) for actor, partner, and relationship effects. In particular, individual differences in aggression (25% due to actor effects from the directed aggression scale; 11% due to partner effects from the received victimization scale) were quite similar to Coie et al.’s estimate (26%). Individual differences in victimization were lower

(5% due to partner effects from the directed aggression scale; 12% due to actor effects from the received victimization scale) than Coie et al.'s estimate (36%). Lastly, relationship effects were substantially greater (70% and 77% from the directed aggression and received victimization scales, respectively) than found by Coie et al. (38%). Nevertheless, similar conclusions can be drawn from both methods—relationship effects are at least as substantial as individual differences.

Peets, Hodges, and Salmivalli (2008a) utilized a slightly modified version of the DAVI to assess aggression and victimization within three relationship types (for each child, a liked, disliked, and neutral peer was identified). Two scores were derived for aggression for each relationship type, one measuring proactive aggression (3 items; e.g., *I threaten and bully [name of peer]*) and one measuring reactive aggression (3 items; e.g., *I blame [name of peer] in fights*). Victimization from each relationship partner was assessed with 4 items (e.g., *I get called names by [name of peer]*). To enhance variability, Peets et al. (2008a) included a 5-point rating scale for each item (dichotomous responses were used for each item in Card and Hodges, 2007).

Peets et al. (2008a) used a two-level (hierarchical) modeling approach (where the three relationship types were nested within individuals) to estimate the variance due to individual differences versus relationship type. The variance attributable to individual differences in aggression (22% and 35% for reactive and proactive aggression, respectively) was substantially lower than that due to relationships (78% and 65%, respectively). For victimization, 12% was due to individual differences, and 88% to relationships. Thus, taking a relatively narrow focus on these 3 relationship types yields similar conclusions as Card and Hodges (in press) and Coie et al. (1999) regarding the importance of the differential distribution of aggression across varying interaction partners. However, such an approach identifies the *type* of relationship that a child is most likely to deliver aggression towards (as well as to be victimized by). Children were most likely to be aggressive (both proactively and reactively) against, and victimized by, others whom they disliked compared to the peers towards whom children felt no affect (neither liked nor disliked) or whom they liked (Peets et al., 2008a).

Similar findings regarding the increased likelihood of delivering aggression toward personally disliked peers come from Card and Hodges (2007). In this study, the authors used the DAVI to determine the proportion of each child's (6th- and 7th-grade boys and girls) mutual antipathies (identified by mutual dislike between two children), neutral

peers (neither liked nor disliked), and friends (mutual liking) that victimized them. On average, 35% of children's mutual antipathies victimized them as opposed to only 6.8% of friends and 6.4% of neutral peers. Moreover, the reciprocal nature of dislike was an important element as victimization from unilaterally disliked peers (24%) and unilaterally disliking peers (11.7%) was less likely than victimization from mutual antipathies—although it is clear that when either member of a dyad dislikes the other there is still a greater chance of being victimized than from friends or neutrals.

Card and Hodges (2007) also highlighted the need to take into consideration the characteristics of antipathies to better understand whether antipathies might aggress against the child. Children were more likely to be victimized by their mutual antipathies when they were high, compared to low, on global (target nonspecific) aggression and physical strength and low, compared to high, on victimization and the display of internalizing behaviors. It is important to note that the characteristics of mutual antipathies continued to predict victimization from children's mutual antipathies even after taking into account the characteristics of relationships marked by unilateral dislike.

Studying behaviors that occur within relationships can illuminate the meaning of results that have utilized global, decontextualized (source aspecific) assessments of aggression, victimization, and their correlates. First, Card and Hodges (2007) found that, of the three relationship sources (mutual antipathies, friends, and neutral peers) of victimization, only victimization from mutual antipathies was significantly correlated with traditional self- and peer-reported measures of victimization. This suggests that children are unlikely to register in their summary evaluations the degree to which they are victimized, overall, when aggressive behavior comes from peers with whom they either have no affective connection, or with whom they are friends. Further, it suggests that children also dismiss aggressive behaviors directed in the peer group between others who are friends with each other or have no affective ties. Rather, aggression is taken into account in children's evaluations (about self and others) primarily when mutual dislike is present between the two individuals involved in the aggressive exchange.

As reviewed earlier, victimization by peers is associated with greater internalizing difficulties and low self-esteem (e.g., Egan & Perry, 1998; Hodges & Perry, 1999). Card and Hodges (2007), however, found that these correlates of victimization are relationship-specific. That is, victimization from mutual antipathies, but not from neutral peers or from

friendships, predicted peer-reported internalizing difficulties and low self-worth. Although this study was a concurrent correlational study, prior findings linking victimization to later maladjustment may be primarily due to children being victimized by their mutual antipathies. Alternatively, findings suggesting that certain personal and interpersonal vulnerabilities place children at risk for subsequent victimization (e.g., Hodges et al., 1999; Hodges & Perry, 1999) might be specific to experiencing victimization from mutual antipathies, rather than from the peer group at large. Clearly, longitudinal studies are needed to evaluate these possibilities.

SOCIAL-COGNITIVE EVALUATIONS OF BEHAVIOR

The way humans behave can, at least partly, be explained by their underlying thought patterns (i.e., social cognitions). One of the most widely used heuristics for studying aggressogenic social cognitions in children and adolescents is Crick and Dodge's (1994) reformulated social information processing (SIP) model that describes different "mental steps" that individuals go through before they engage in actual behavior in a situation. These mental processes are (a) encoding of cues (attention to a cue and its storage); (b) interpretation of cues (applying the meaningfulness to the information); (c) clarification of goals (deciding what one wants to achieve); (d) response access or construction (accessing possible behavioral responses from the behavioral repertoire in long-term memory or construction of new behavioral responses); and (e) response evaluation and decision (evaluating one's own capabilities in performing the behavior and the possible outcomes for the selected or constructed behavioral responses, and choosing the "best" one).

Thus far, most research on SIP has focused on individual or group differences in dispositional characteristics. This relatively decontextualized view of social cognition and behavior has dominated the literature. However, as we have argued, individuals' thought and behavioral patterns are always intertwined with the context in which they appear. Ignoring this contextual variance can result in inaccurate conclusions about the phenomenon. Although several contemporary social-cognitive theories are consistent with a personality $\times$ situation approach (e.g., Anderson & Chen, 2002; Mischel & Shoda, 1995), we focus here on SIP mechanisms since they have been extensively used to study aggressive behavior during childhood and adolescence.

Most SIP studies have investigated trait-like individual differences in social cognitions in relation to trait-like individual differences in aggression. For instance, it has been shown that aggressive children have a tendency to interpret intentions of others as hostile (e.g., Dodge, Murphy, & Buchsbaum, 1984; Dodge & Somberg, 1987; Waldman, 1996), are more confident in their ability to aggress (Perry, Perry, & Rasmussen, 1986), and evaluate aggression more favorably in terms of its appropriateness (Erdley & Asher, 1998) and expected consequences (Perry et al., 1986). As a result, aggressive children's SIP style is often viewed as deficient. Moreover, Crick and Dodge (1994) proposed that "processing patterns and [behavioral] tendencies, as they are formed, come to act like personality-like characteristics that guide behavior" (p. 81). According to this assumption, a tendency to attribute hostility to others and aggressive behavior itself become gradually inherent characteristics of aggressive children.

This view of trait-like processing has deviated from the situation-specificity of the SIP model, at least partly, due to the designs used to study SIP. Namely, research on social-cognitive processes has been overwhelmingly conducted in a paradigm where children are asked to think about a hypothetical peer. However, it is likely that children's social-cognitive evaluations of hypothetical peers are influenced by their everyday interactions with actual peers. In other words, cognitions elicited by thinking about a hypothetical peer might reflect representations of a specific peer from the child's social environment. As we do not know whom the hypothetical peer actually represents (a generalized peer, a specific actual peer), more ecological validity could be gained by examining social-cognitive processes elicited by thinking of an actual peer with whom the child interacts in everyday life.

Furthermore, the behavioral reputation of the target peer impacts children's subsequent social-cognitive processes. For instance, Dodge (1980) found that both aggressive and nonaggressive children attributed more hostile intent to aggressive targets than to nonaggressive targets. Further, aggressive and nonaggressive children are more confident about gaining their friends' approval and expect fewer signs of distress when their aggression is targeted toward aggressive than nonaggressive peers (Perry et al., 1986). Thus, both aggressive and nonaggressive children social-cognitively discriminate between situations (whether their interaction partner is aggressive or not). However, stronger evidence for the discriminative facility (making fine tuned social-cognitive

evaluations depending on the interaction partner) of children would come from studies where they are asked to interpret the actions of others and evaluate their own capabilities and likely outcomes towards a variety of interaction partners (rather than towards extreme groups such as aggressive vs. nonaggressive). Below, we review the adaptations of typical measures used to assess global processing mechanisms to the study of situation- or target-specific processing mechanisms.

Utilizing the same subjects from the laboratory playgroups of six African-American boys investigated by Coie et al. (1999), Hubbard, Dodge, Cillessen, Coie, and Schwartz (2001) read vignettes aloud and asked the boys to imagine aggressing against each of the other members of the playgroup (i.e., the name of each member of the playgroup was presented one at a time). After each vignette, children were asked to evaluate the likelihood of instrumental effectiveness of using aggression toward each peer (i.e., outcome expectancies). In a different set of vignettes, children were presented with scenarios (where the intent of the provocateur was ambiguous) that resulted in a negative outcome for the self. The children were then asked to indicate, when imagining the provocateur being each member of the playgroup, whether the negative outcome resulted from benign or hostile intent (attributions of hostile intent). Thus, for each member of the 11 playgroups, comprised of 6 members each, outcome expectancies and hostile attributions were computed about each of the other five members resulting in a total of 10 social cognitive variables (outcome expectancies toward each of the five others, and hostile attributions toward each of the five others).

Social relations modeling was then used to decompose the reliable variance attributable to actor (individual differences in the level of SIP mechanisms across interaction partners), partner (individual differences in children eliciting similar levels of SIP mechanisms from others), and relationship (SIP mechanisms specific to the dyadic relationship). For outcome expectancies, all components were significant with 47% due to individual differences between actors, 27% to partner effects, and another 27% due to the unique relationship between the members of the dyad. For hostile attributions, of the reliable variance, 39% was due to actor effects, 16% was due to partner effects, and 43% was due to the relationship between the members of the dyad (for each, sums do not equal 100% due to rounding error). Although the variance attributable to dyadic variability for outcome expectancies was less than that attributable to individual differences, the relationship variance estimate for hostile attributions indicates that, as was found for behaviors reviewed

earlier, it is at least as important as individual differences in the tendency to attribute hostile intent to others. We should note that these variance estimates are likely to vary depending on the composition of the group (and also by the larger context in which the group is situated). Thus, the variance estimates reported by Hubbard et al. (2001) may have been affected by the fact that two of the six members were highly aggressive, and that the interactions on which the SIP mechanisms were evaluated and assessed occurred in a laboratory setting.

We were able to identify only one study that evaluated one step of the SIP model in the naturalistic context of school across all same-sex interaction partners. Salmivalli and Peets (in press) asked 11–12-year-old Finnish children to report the importance of agentic (i.e., being heard, respected, and admired) and communal (i.e., affiliation and closeness) goals toward each same-sex member of their classroom. Variance decomposition using hierarchical modeling indicated that 54% and 35% of the variation was due to individual differences in agentic and communal goals, respectively. On the other hand, 46% and 65% of the variance in agentic and communal goals, respectively, was attributable to dyadic variability. Again, a large portion of the variance, particularly for communal goals, was attributable to children having very different goals across interaction partners. Although this study did not evaluate aggressogenic SIP mechanisms, *per se*, the fact that a large portion of the variance was attributable to relationships obviates, to a degree, the concern that the relationship effects found by Hubbard et al. (2001) may have been due to the laboratory setting and/or the selected composition of children (although estimates are still likely to vary based on these factors).

As the task requirements for assessing SIP mechanisms across all interaction partners (even when one limits the assessment to same-sex peers) in the school context can exceed the resources of most researchers (and schools), another approach to studying intraindividual variation in SIP mechanisms, like for behaviors reviewed earlier, is to limit the assessment towards interaction partners with whom the child has established affective ties (see Lemerise and Arsenio, 2000, who, more explicitly, incorporated emotional processes and affective ties into the SIP model). In two studies, the focus was on relationships marked by dislike (enemy or disliked peer), neutral affect (neither liked nor disliked), and positive affect (a friend or liked peer). For each child (4th-grade Estonian boys and girls; Peets, Hodges, Kikas, & Salmivalli, 2007; and 5th-grade Finnish boys and girls; Peets et al., 2008a), relationships were identified either through relationship descriptions or through sociometric

procedures. The names of each child's three relationship partners were then separately inserted (in a verbal or written format) into vignettes depicting provocation and rebuff situations. Children were then asked questions designed to assess a variety of relationship-specific SIP mechanisms, including attributions of hostile intent, behavioral strategies (hostile, verbal, and passive), instrumental and relational outcome expectations, and self-efficacy for aggression.

Two-level modeling was used to decompose variance into that attributable to individual differences in these SIP mechanisms and that due to relationships. Table 6.1 summarizes the variance attributable to relationships (the remainder from 100 yields the variance attributable to individual differences in the SIP mechanisms). Two aspects of Table 6.1 deserve mention. First, for all SIP mechanisms assessed in these two

Table 6.1

PERCENTAGE OF RELATIONSHIP-SPECIFIC VARIANCE IN SOCIAL COGNITIONS AND BEHAVIORS

TARGET-SPECIFIC VARIABLE	PEETS ET AL. (2007)	PEETS ET AL. (2008A)
<i>Social cognition</i>		
Hostile attributions	87%	98%
Behavioral strategies		
Hostile	79%	–
Verbal/assertive	69%	–
Passive	73%	–
Relational outcome expectations	–	83%
Instrumental outcome expectations	–	67%
Self-efficacy beliefs	–	43%
<i>Behavior</i>		
Reactive aggression	–	78%
Proactive aggression	–	65%
Victimization	–	88%

Note: – indicates that the particular social cognition or behavior was not measured.

studies, the relationship variance was larger than variance attributable to individual differences (with the exception of self-efficacy for aggression). This again points to the importance of considering the relational context in which most behaviors occur when trying to understand how children process information about their interactions with others. Second, variance in attributions of hostile intent was almost entirely due to relationships, but self-efficacy for aggression had substantial variance attributable to individual differences. This suggests that some processing mechanisms (i.e., attributions of hostile intent) are more likely to influence behavior within relationships whereas others (i.e., self-efficacy for aggression) are likely to influence behavior across interaction partners.

It is important to note that in both these studies (Peets et al., 2007, 2008a), children's own relationship partners differed with regard to several social and behavioral measures. Enemies (or disliked peers) were more likely, according to peers and teachers, to be rejected, aggressive, and display internalizing difficulties, and less likely to display adaptive social behaviors than friends (or liked peers) and neutrals (Peets et al., 2007). One might question, then, whether affective ties between two children truly affect the social-cognitive discrimination about their different relationship partners. That is, differences in SIP mechanisms across different relationship types may be due to the behavioral characteristics of the relationship partners that elicit the differential SIP evaluations. However, in both studies, when the social and behavioral reputations of children's own relationship partners were taken into account, the affective tie with the relationship partner remained a significant predictor of variation between interaction partners.

CONNECTING TARGET-SPECIFIC SIP MECHANISMS TO TARGET-SPECIFIC SOCIAL BEHAVIOR

We have reviewed evidence supporting the view that children behave and process social information differently depending upon the identity of their interaction partner. Of course, the value of a target-specific approach to studying behavior and SIP would be heightened by showing that target- or relationship-specific social-cognitive processing relates to target- or relationship-specific behavior. One limitation of Peets et al. (2007) was the failure to include target-specific assessments of behavior, and thus the underlying assumption that the SIP mechanisms relate to behavior was untestable. To remedy this situation, Peets et al. (2008a)

assessed children's proactive and reactive aggression toward each of their identified relationship partners utilizing an adapted version of the DAVI, as reviewed earlier. Two kinds of connections can be evaluated with regard to cognition-behavior links when taking the multilevel modeling approach. First, and what is typically studied without modeling of intraindividual variability, is the connection between individual trait-like differences in SIP mechanisms and individual trait-like behaviors. Second, one can evaluate the association between relationship-specific SIP mechanisms and relationship-specific behaviors.

As attributions of hostile intent did not evidence significant variability between individuals (i.e., no evidence for individual differences in trait-like tendencies to attribute, or not, hostility across interaction partners), the only connection that could be evaluated with regard to this SIP mechanism was at the relationship level. As one would expect, according to the SIP model, attributions of hostile intent predicted reactive aggression somewhat more strongly than proactive aggression. At the individual differences level, self-efficacy for aggression predicted (proactive) aggressive behavior across interaction partners (even though there was significant variability for self-efficacy at the relationship level, this variation did not predict relationship-specific aggression). Similarly, Hubbard et al. (2001) found that relationship-specific reactive aggression was best explained by the attributions of hostility within that relationship (and not by the tendency to attribute hostility across relationship partners). However, the results of the same study suggest that dyad-specific proactive aggression is more guided by the characteristics of the actor (i.e., aggressiveness of the perpetrator across different dyads) and the target (i.e., being victimized by different dyadic partners) rather than by the unique relationship between the two. Again, this pattern of results suggests that some SIP mechanisms operate to influence behavior within relationships, whereas others (possibly the ones occurring in the later stages of the SIP model relevant to the self) are likely to influence behavior across interaction partners.

REFLECTIVE VERSUS AUTOMATIC PROCESSING

Despite the fact that much of social information processing is assumed to be highly automatic (without conscious effort), research examining social-cognitive patterns (at least in children and adolescents) has usually relied on reflective measures such as hypothetical vignettes. As an

exception, Nummenmaa, Peets, and Salmivalli (2008) conducted three experiments with 6th-grade boys and girls to examine (a) relationship specificity, (b) automaticity, and (c) emotional components of information processing by using an affective priming paradigm. In all three experiments, photos of children's own liked and disliked classmates, and unknown peers (from a different school) with neutral facial expressions, served as primes. In Experiments 1 and 2, after displaying a prime, the participants' task was to categorize happy and angry probes (i.e., pictures of females and males with happy and angry facial expressions) as fast as possible. In Experiment 3, primes were followed by vignettes where a hypothetical peer instigator rebuffed or provoked a focal child. Each vignette was followed by questions about intent attribution, anger, and willingness to retaliate toward the hypothetical peer. Analyses revealed a priming effect in Experiment 2. Reaction times for congruent prime-probe pairs (disliked peers-angry face, liked peers-happy face) were faster than for incongruent pairs (disliked peers-happy face, liked peers-angry face) but only when the time between the onset of the prime and probe was longer (450 ms vs. 300 ms). In Experiment 3, participants made more hostile judgments when the disliked peer served as a prime. These results indicate that facial primes elicit relationship-congruent affect automatically, but the processing of the complex stimulus (i.e., identifying the peer and retrieving the related affect) takes some time. Furthermore, Experiment 3 also showed that cognitive elements of relationship-specific representations are activated automatically.

ACTUALIZATION OF TARGET-SPECIFIC SIP MECHANISMS INTO BEHAVIOR

Social-cognitive learning (Bandura, 1986) and social information processing (SIP; Crick & Dodge, 1994) approaches have been used extensively to explain proximal causes of individual differences in children's and adolescents' behaviors such as aggression. According to both approaches, social cognitions guide subsequent behaviors. Although there is considerable evidence to support the cognition-aggression link, there is surprisingly little support for the basic premise that cognitions guide aggression over time. Most studies have utilized concurrent correlational designs and the handful of longitudinal studies that have been conducted did not control for initial levels of aggressive behavior (with two exceptions), thus limiting inferences regarding direction of effect. For instance,

“deviant” SIP patterns in grade 4 have been found to mediate the associations between retaliation beliefs in grade 3 and aggression in grade 5 (Zelli, Dodge, Lochman, Laird, & Conduct Problems Prevention Group, 1999). Similarly, Dodge, Pettit, Bates, and Valente (1995) demonstrated that SIP mechanisms partly mediated the effects of earlier physical abuse on later conduct problems. Two equally plausible alternative interpretations of these findings are that the earlier processing patterns were either markers of (with no direct influence), or consequences of, earlier maladjustment. As these studies lacked statistical controls for baseline levels of aggression (or conduct problems), no conclusion could be made about the ability of social cognitions to forecast individual differences in changes in aggressive behavior.

We were able to identify only two longitudinal studies testing the cognition to aggression link (both measured in a trait-like manner) that controlled for initial levels of aggression. In both studies, social-cognitive evaluations translated into aggressive behavior, but only under certain conditions. Huesmann and Guerra (1997) found that normative beliefs predicted increases in aggression for older, but not younger, elementary school children. In the second study (Egan, Monson, & Perry, 1998), the actualization of boys’ aggression-encouraging cognitions depended on initial levels of aggression (high) and victimization (low).

Why has so little support been provided for the basic assumption that social cognitions drive behavior? One reason may be that personality and social development researchers have usually engaged in searching for stable patterns of dispositions and behaviors, ignoring (or treating as error) the variance across different situations and relationship types (see Mischel, 2004). As indicated earlier, although the importance of studying social context was stressed in the SIP model (Crick & Dodge, 1994), most studies (exceptions noted in this chapter) have treated social cognitions as trait-like characteristics (i.e., stable across situations or partners).

Taking a target-specific approach focusing on relationships marked by dislike with a 1-year longitudinal design, Peets, Hodges, and Salmivalli (2008b) found support for the basic tenet that SIP mechanisms guide behavior. However, the actualization of aggressogenic SIP mechanisms into aggressive behavior was conditional. Only those children who continuously disliked their target (over the one-year interval) acted on their cognitions. In addition, aggressiveness of the actor and target further moderated the cognition-aggression links. Actualization of relevant aggression-encouraging cognitions was maximized under high

base levels of actor's reactive (attributions of hostility) and proactive (self-efficacy beliefs for aggression) aggression, as well as target's reactive aggression. This study is the first to demonstrate a longitudinal effect of hostile attributions on *changes* in aggression. Moreover, although children who attributed more hostility to their disliked peer tended to have higher self-efficacy beliefs, these two social-cognitive processes drove different forms of aggression. Proactively aggressive children's self-efficacy beliefs are likely to have become "crystallized" (Huesmann & Guerra, 1997) via a history of positive reinforcement for their aggressive acts (e.g., peer approval). Moreover, a sense of capability to aggress toward someone can be gained when aggressing against reactively aggressive targets that no one really likes. Securing a position in a peer group (or among friends) is one of the outcomes that can motivate children to aggress (Perry, Williard, & Perry, 1990). In the case of hostile attributions, children who have had difficulties regulating their emotions (e.g., anger) in the past are more likely to act aggressively against the source of their perceived threat or frustration. Although rejected children are often victimized by their peers, the Peets et al. (2008b) study adds to the literature by providing insight into the identities of children who are most likely to aggress toward the peers they personally dislike.

CONCLUSIONS

Children are highly discriminative with regard to what they think of their different peers and how they behave in different relationships. However, whereas some of the cognitions, such as attributions of hostile intent, operate solely at the dyadic level, other cognitions, such as self-efficacy beliefs for aggression, are relatively more person-driven and influence behavior across different interaction partners. In addition, although children behave according to their relationship-specific cognitions, there are certain conditions that enhance the translation of thought into behavior. In particular, cognition-aggression links are maximized when children's personal dislike toward the peer is chronic, and children and their targets already have aggressive patterns in their repertoire. In summary, we believe that a person $\times$ situation approach offers an alternative avenue for studying social cognition and behavior. Making inferences on the basis of context-free measures, at least with regard to interpersonal cognition and behavior, can potentially result in underestimation of the intra-individual heterogeneity of thinking and

behavior, and predictive role of social-cognitive processes in determining our behavior.

A person $\times$ situation approach also has implications for interventions. In particular, interventions that solely address global decontextualized social-cognitive processes might not be the most effective in that any resultant change in thought processes may not necessarily result in behavioral modification in specific relationships. In contrast, understanding the degree to which children's difficulties stem from one relationship or several should prove useful to clinicians and school psychologists. As different social cognitions show a different degree of variation attributable to the social context (e.g., attributions of hostile intent and self-efficacy for aggression), optimal interventions may need to address different cognitions at different levels. Namely, whereas some aggression-supporting thought processes that are less sensitive to different contexts should be targeted more globally (e.g., self-efficacy), other cognitions, such as inferring hostility from others, might contribute to problems only within specific relationships and should thus be dealt with more thoroughly at the relationship level.

As relationships marked by dislike are disproportionately likely to involve aggressive interactions and activate aggressogenic thought-behavior processes, future research should focus on the determinants of children's personalized propensities to dislike others and develop antipathetic relationships. Whereas friendships are often marked by similarity on a variety of global behavioral dimensions (e.g., externalizing, internalizing; see Hodges et al., 1997) and target-specific aggression (Card & Hodges, 2006), antipathies are likely to be marked by dissimilarity and incompatibility (Card & Hodges, 2003). Relationship histories (with same and different partners) are also likely to be important. For example, close friendships are similar in their preoccupied and avoidant attachment stances towards their parents (Hodges, Finnegan, & Perry, 1999), but antipathetic relationships are dissimilar (Card & Hodges, 2003). Many antipathetic relationships arise from broken friendships and involved high amounts of conflict (Card, 2007). Perhaps friendships that transform into antipathetic relationships were not compatible to begin with (clashing personalities, behavioral and relationship stance discordances).

Future research could examine whether the degree of sensitivity to distinct relationship contexts (i.e., discriminative facility; Mischel, 1973) is associated with differences in adjustment. Being able to adapt to the particular relationship context is likely to be necessary for optimal

functioning. In contrast, children who do not discriminate between different interaction partners might end up having difficulties with relationships throughout their lifetime.

Moreover, certain situations, such as being rebuffed by a peer (e.g., a friend), might bear a strong personal meaning and consequently trigger an active hostile response in some children. For others, a different situation (e.g., being approached by an enemy) can activate a similar response (see Mischel & Shoda, 1995). Thus, more information is needed about the factors that could potentially explain individual differences in children's situation-behavior profiles.

The degree to which children social cognitively and behaviorally discriminate among same valence relationships will also need attention (e.g., Kiesner, Nicotra, & Notari, 2005). A best friend is not the same as a second-best friend, and an enemy is not someone who is just disliked. We expect fine-tuned judgments and actions to be evident even among relationships of the same valence (but weaker than across different valence relationships). For example, based on differential expectations of threats to relationship maintenance, some children might inhibit teasing their most valued friendship, but make fun of their least valued friendship (or vice versa).

In conclusion, relationships are central features of our lives throughout development. Close relationships can be a source of great satisfaction, well-being, and joy. Nonetheless, some people engage in self-limiting or harmful relationships, remain in them for long periods of time, and suffer lasting scars as a consequence. The person $\times$ situation approach we have taken, where situations are interaction partners, explicitly recognizes that relationships are much more than just the sums of their constituents and that they differentially affect our thinking and behavior. Such an approach is likely to improve our ability to identify the characteristics of healthy and unhealthy relationships, and understand the origins and consequences of the different relationships we engage in throughout our lives.

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7

Contributions of Three Social Theories to Understanding Bullying Perpetration and Victimization Among School-Aged Youth

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Bullying, peer rejection, and peer victimization are phenomena that are the result of complicated exchanges between individuals and their broader social environment. All individuals influence and are influenced by their surroundings. In this chapter, Bronfenbrenner's (1979) classic ecological theory that depicts the interrelated exchange between individuals, their social environments, and resultant bullying, rejection, and victimization behaviors will be described. This classic theory will also be expanded to include social control (Agnew, 1991; Hirschi, 1969) and social disorganization theories (Sampson & Groves, 1989; Shaw & McKay, 1969 [1942]). First, the influence of social control and disorganization theories will be reviewed alongside social ecological theory. Second, a study will be presented that demonstrates how these theories are supported in a large sample of middle school students. In this study, hierarchical linear modeling (HLM) was used to examine how school environment influences associations among parental, peer, and individual characteristics with bullying perpetration and victimization. Finally, implications for effective prevention and intervention influenced by the social ecology in which individuals exist will be outlined.

Social-ecological theory has been applied to the understanding of youth violence (Fraser, 1996; Lauritsen, 2001), child abuse (Swenson & Chaffin, 2006), engagement in school (Benner, Graham, & Mistry, 2008),

behavior problems (Coatsworth et al., 2000; Estell, Farmer, Pearl, Van Acker, & Rodkin, 2008), and to bullying and peer victimization (Garbarino, 2001; Newman, Horne, & Bartolomucci, 2000; Olweus, 1993; Swearer & Doll, 2001; Swearer & Espelage, 2004). In fact, a social-ecological framework for understanding human behavior has a long history in the psychological literature (Kurz, 2002; Lewin, 1936; Sameroff, 1987), pioneered by Lewin's classic tenet that human behavior is the function of individuals interacting with their environment ($B = f[P, E]$).

The interaction of individuals within their broader social context has a rich history in the psychological literature. Theory and research support the hypothesis that bullying and peer victimization are reciprocally influenced by the individual, family, peer group, school, community, and society. Given the complexity of these intersecting influences, a major challenge facing researchers is how to empirically examine these reciprocal influences. Although Lewin's (1936) classic formula makes intuitive and empirical sense, the actual ability of researchers to test these reciprocal paths has been slower to evolve. The goal of this chapter is to examine the contributions of social control, social disorganization, and social-ecological theories in understanding bullying perpetration and peer victimization through an empirical investigation of reciprocal influences in a large sample of middle school students.

SOCIAL CONTROL THEORY

Social control theory suggests that delinquency is a function of the breakdown of societal bonds. Social control theory, as delineated by Hirschi (1969), asserts that "delinquent acts occur when an individual's bond to society is weak or broken" (p. 16). In other words, the ability of youth to promote bonds with society deters them from engaging in delinquency. Social control theory places great importance on youth establishing healthy bonds to others, including parents, teachers, and schools. These bonds are hypothesized to moderate whether or not youth will engage in aggressive acts. This theory can be applied to engagement in bullying behaviors, as attachment to caregivers has been purported to be linked to involvement in bullying and peer victimization (Duncan, 2004).

Bonds to schools and teachers are also reflected in student's perceptions of a school climate. School climate has been identified as a factor that fosters adolescent resiliency (Bonny, Britto, Klosterman, Hornung, & Slap, 2000) and is associated with delayed or late onset

of delinquent behavior (Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004). Nansel, Haynie, and Simons-Morton (2003) found that victims and bully-victims in the 6th grade perceived their school climate as more negative than bullies or uninvolved students. Glew, Fan, Katon, Rivara, and Kernic (2005) found that among 3rd, 4th, and 5th graders, both victims and bully-victims were more likely than bystanders to report feeling that they do not belong at school. They also found that bullies, victims, and bully-victims were more likely than bystanders to report that they felt unsafe at school (Glew, Fan, Katon, Rivara, & Kernic, 2005).

Furthermore, positive interactions with teachers have also been linked to bullying perpetration and victimization among elementary and middle school students (Espelage & Horne, 2007). That is, classroom practices and teachers' attitudes are salient components of school climate that contribute to bullying prevalence. Indeed, aggression varies from classroom to classroom, and in some instances aggression is supported (Rodkin & Hodges, 2003). Bullying tends to be less prevalent in classrooms in which most children are included in activities (Newman, Murray, & Lussier, 2001), teachers display warmth and responsiveness to children (Olweus, Limber, & Mihalic, 1999), and teachers respond quickly and effectively to bullying incidents (Olweus, 1993).

A second key element of social control theory is that youth possess a commitment to conventional activities. Commitment involves a significant investment of oneself, time, and energy in conventional activities, such as attending school and engaging in community activities. Communities that have the resources to provide youth with opportunities to engage in conventional behavior have been thought to foster attitudes and behaviors that are inconsistent with delinquent behaviors (Hirschi, 1969). Empirical work has found that community resources affect a wide range of adolescent behaviors such as school achievement (Brooks-Gunn, Duncan, Klebanov, & Sealander, 1993) and behavioral problems (Duncan, Brooks-Gunn, & Klebanov, 1994).

A third element of social control theory is actual involvement in conventional activities (Hirschi, 1969). For example, empirical studies have reported that adolescents who are not involved in extracurricular activities have been shown to display problematic behaviors in high school (Mahoney, 2000; Mahoney & Cairns, 1997). The final element of social control theory is beliefs in conventional norms or the existence of a common value system within the society (Hirschi, 1969). Generally, if an adolescent does not have a positive sense of community, he or she would

be less apt to follow conventional rules of good behavior. Thus, having a strong sense of community involvement has shown to be effective in preventing delinquency (Kazdin, 1987).

Empirical support for Hirschi's social control theory has been mixed. Some studies demonstrate support for the four elements, while other studies find no direct effect of these elements on delinquent behavior (Agnew, 1991). Thus, it is believed that the association between low social control and delinquent behavior is mediated by a third variable that contributes to youth deviancy (Agnew, 1992). For example, strain theory argues that low social control leads to anger and/or frustration as a result of school failure or negative relations with parents, which then leads youth to engage in delinquent behavior (Agnew, 1992). From a differential association perspective, low social control increases the likelihood that youth will associate with peers who engage in similar levels of nonnormative behaviors (Sutherland, 1947). Combining social control, strain, and differential association theories provides an explanation for how bullying perpetration might emerge during early and late adolescence.

SOCIAL DISORGANIZATION THEORY

Social disorganization theory (Shaw & McKay, 1932) attributed deviant behavior to socially disorganized cities, which are characterized by impoverished economic and social conditions that limit a community's ability to control or supervise adolescent behavior. Wilson's seminal work (1987) revived social disorganization theory by noting poverty effects on family processes and outcomes. These researchers postulated that the community in which an adolescent lives is an important context for adolescent development because it provides an element of collective socialization and potential influences of nonparent adults. Nonparent adults within a community can play a critical role by monitoring adolescents and creating a safe, respectful environment (Small & Luster, 1994) and by sharing the responsibility of promoting positive behaviors among adolescents (Sampson, Raudenbush, & Earls, 1997). For example, Pettit, Bates, Dodge, and Meece (1999) found that living in an unsafe community was a significant risk factor for externalizing behaviors among youth, including aggression.

Leventhal and Brooks-Gunn (2000) adapt social disorganization theory to examine neighborhood effects on youth behavior. More specifically,

they describe how collective efficacy within neighborhoods is an important aspect of effective communities. Collective efficacy embodies both social control and social cohesion, where social control is the likelihood of neighbors intervening in situations when children are fighting or skipping school. This work stems nicely from that of social control theory in which supervision and control of adolescent peer groups are seen as instrumental to deterring delinquency (Sampson, 1997; Sampson & Groves, 1989). Social cohesion is the agreement among members of the community that they are willing to help, share similar values, have concerns for others, and are close to one another.

In addition to norms/collective efficacy, Leventhal and Brooks-Gunn (2000) implicate relationships within neighborhoods as also being important in understanding child development. These relationships include parent-children relationships and peer group relationships. For example, they argue that neighborhood characteristics might have an indirect effect on adolescent deviant behavior through the mediating role of the parents' ability to supervise and monitor their children's behavior. Additionally, there is evidence that level of positive peer support moderates neighborhood effects (Hawkins, Van Horn, & Arthur, 2004). Not much is known about the potential application of social disorganization theory to bullying perpetration and/or victimization, but it is plausible that collective efficacy within communities, including neighborhoods and schools, is related to less bullying perpetration and victimization.

SOCIAL ECOLOGICAL THEORY

Bronfenbrenner's classic ecological framework (1979) illustrates the system levels that exist within human development. It explains the person-environmental factors that are organized in a contextual depiction where the levels of the framework consist of the microsystem or the immediate social environment (e.g., roles, relationships, and activities); mesosystem or social environment impacting development indirectly (e.g., parental employment setting, school administration issues, peer group in school); exosystem (e.g., parents' friends; activities of teachers at school); and macrosystems, which focuses on broader societal factors (e.g., socioeconomic status, culture) (Andrews, 1985).

In an attempt to apply this social ecological model to engagement in bullying behaviors, multinomial logistic regression was used in a recent study to examine the influence of peer attitudes toward bullying,

school climate, neighborhood context, and individual negative affect on engagement in bullying and peer victimization (Swearer et al., 2006). Although the entire model did not hold up in the analyses, the relations among peer attitudes toward bullying, school climate, and involvement in bullying were robust. The peer ecology is a strong indicator of engagement in bullying.

Peer Influences

In examining peer influences on violent behavior, studies show that too often youth achieve high social status and build a reputation among peers by displaying aggressive behaviors (Rose, Swenson, & Carlson, 2004). Gaining social approval for antisocial behaviors by earning “props” or respect are also commonplace among school peers (Wilkinson, 2001). This type of peer pressure is strong enough to shape behaviors by encouraging students to bully others or look for an opportunity to engage in fighting in order to be seen and lauded by their peers.

Research has consistently shown that members of the same peer group are similar in levels of bullying perpetration; however, it is not clear whether this similarity draws them together or whether they become similar over time. That is, this homophily or the tendency of individuals to associate and bond with similar others (Espelage, Holt, & Henkel, 2003), offers two explanations for within-group similarity. First, selective association posits that peer groups form when students with similar attitudes and behaviors find each other (Cairns & Cairns, 1994). Second, reciprocal socialization explains within-group similarity through youth joining of a group, and through frequent and intimate interactions they engage in similar behaviors of other peer group members (Cairns & Cairns, 1994). Macklem (2003) explains that children will change their behavior in order to obtain friends, and in most cases children will succumb to peer pressure. Indeed, late childhood and early adolescence is marked by a deep desire to impress, to feel liked, to feel wanted and needed, or to just generally fit in and belong. Thus, friends and peers can also play a positive role in the lives of adolescents.

Individual Influences

Individual factors such as alcohol and drug use (Carlyle & Steinman, 2007) and depression (Craig, 1998; Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, 1999; Swearer, Song, Cary, Eagle, & Mickelson,

2001) have been implicated in the engagement in bullying and peer victimization. Just as the homophily hypothesis has been applied to our understanding of youth aggression (Cairns, Cairns, Neckerman, Ferguson, & Garipey, 1989) and bullying (Espelage et al., 2003), homophily also has explanatory power for adolescent substance abuse. Peers who tend to use drugs and alcohol affiliate with peers who engage in the same behaviors (Dishion, Patterson, & Griesler, 1994). Relatedly, youth who are depressed tend to self-medicate with drugs and alcohol (Suh, Ruffins, Robins, Albanese, & Khantzian, 2008; Turner, Larimer, Sarason, & Trupin, 2005) and are also likely to engage in bullying and peer victimization (Seals & Young, 2003).

Family Influences

Parents are often implicated by educators and politicians for student truancy, low educational achievement, and disruptive behaviors (Zhang, 2005). Parents might be unintentionally contributing to negative and sometimes aggressive behavior development in their children (Macklem, 2003), best explained by social control models (Hirschi, 1969; Sweeney, 2007). Sweeney (2007) defines social control as the process by which individuals develop certain motives, skills, values, and behaviors from their caregivers that allow them to function successfully in society and deter them from developing antisocial behavior (Englander, 2007). Parents and families provide the context in which students grow and develop.

School Climate Influences

The school environment plays an important role in fostering and perpetrating aggression such as bullying behaviors (Macklem, 2003; Swearer et al., 2006) and violence (Cornell, 2006; Jimerson & Furlong, 2006). Attitudes and behaviors of teachers and administrators contribute to the rates of bullying and victimization at school. When teachers ignore and/or tolerate bullying, provide poor supervision in classrooms or schools, and leave students to manage the bullying themselves, there is a risk for increased perpetration and victimization among students (Ross, 1996).

There are aspects of school climate that influence problematic behavior. For example, teachers and administrators often pay little attention to the ethos, or overall climate of the school. Chen (2008) explains this by pointing out results from his study that showed a strong correlation between lack of bonding within the schools and school crime.

Schools that do not allow opportunities for more personal interaction and smaller communities between teachers and students create a disengaged student population. It is clear that school climate is a strong predictor of engagement in bullying behaviors (Doll, Song, & Siemers, 2004; Kasen, Berenson, Cohen, & Johnson, 2004).

TESTING A SOCIAL ECOLOGICAL MODEL OF BULLYING: THE 2005 DANE COUNTY STUDY

We next demonstrate the utility of adopting a social ecological approach to bullying by describing the results of a large-sample study (see Espelage, Aragon, Birkett, & Koenig [2008] for details of study). The data presented here in this chapter, however, have not been published previously. This study expands on this theoretical formulation and considers whether the school context moderates the association between bullying perpetration and victimization and individual, peer, and family factors. The participants for this study were 7,376 students in 7th ($n = 3,552$) and 8th ($n = 3,824$) grade across all 27 middle schools from a large Midwestern county. The sample was predominantly (73%) White and came from a variety of locales ranging from small towns to large cities.

Measures

To provide validation for the study's measures, longitudinal data were used to inform measurement models. The 2000 Dane County Youth Survey (Memmo, Park, & Small, 2000) was conducted to collect extensive information on the opinions, behavior, attitudes, and needs of students in Dane County. The survey assessed specific information on self-reported substance use and perceptions about parents, peers, schools, and communities among students from grades 9 through 12. First, exploratory factor analyses (EFA) of items in the 2000 Dane County Youth Survey were conducted. Next, results from the EFA inform the construction of measurement models using confirmatory factor analysis (CFA) from data collected in 2005. CFAs with robust maximum likelihood estimations were conducted using LISREL 8.2 (Jöreskog & Sörbom, 1998). Because the purpose of the EFA was to identify the most applicable model with meaningful factors, two criteria were used in retaining a preliminary factor structure: (a) factor

loadings that exceeded .40 were retained (Floyd & Widaman, 1995), and (b) cross loadings greater than .40 were eliminated. The intent was to maintain both theoretical and conceptual plausibility. CFA determines if the number of factors and the loadings of indicator variables conform to what is expected on the basis of the previous results from the 2000 data. Indicator variables were selected on the basis of prior theory and the EFA of the 2000 data set.

Measures including self-reports of sex, grade, and race were elicited to determine demographic characteristics, self-reported bullying behavior (UIBS; Espelage & Holt, 2001), peer victimization (UIVS; Espelage & Holt, 2001), alcohol/drug use (Espelage et al., 2008), and depression/suicidal feelings (Espelage et al., 2008). Positive peer influence was assessed with a four-item scale asking how much participants agree or disagree with statements about their friends' positive influence ($\alpha = .83$; *My friends help me stay out of trouble*).

Three scales were used to assess parental factors that emerged through EFA and CFA. First, a *parental communication scale* consisted of a four-item scale that asked how often participants talked with at least one parent about sex, drugs, personal issues, and their future in the past 12 months ($\alpha = .78$). Items were: "I talked with my parents about the risk of drinking/doing drugs, I talked with my parents about risky sex"; "I talked with my parents about personal problems"; and "I talked with my parents about my future." *Parental caring* was assessed with two items. Participants were asked how much they felt that their parents cared about them and were there when they needed them ($r = .77$). Items were: "My parents are there when I need them"; "My parents care about me." A four-item scale assessed *parental values*. Participants are asked how much they agreed or disagreed with statements assessing what parents think about specific risky behaviors, such as sex, alcohol, smoking, and drugs ($\alpha = .85$).

Finally, school climate with an 8-item scale that assessed how much students feel that they are getting a good education at their school and are respected and cared about by adults at their school ($\alpha = .73$). An example item is: *Adults in my school care about me and how well I do in school*.

Results

Multilevel models of contextual and moderating effects were constructed to test whether school and community factors contributed to

the explanation of bullying perpetration and bullying victimization over and above the influence of individual (alcohol and drug use; depression/suicidal feelings), parental, and peer factors using the software program HLM 6.0 (Bryk, Raudenbush, & Congdon, 1996). HLM is a statistical technique that models the effects of nested data (i.e., students nested in communities) by accounting for the interdependence of students within the same community, and it models school level (Level 2) and individual level (Level 1) variances on the outcome variables (bullying perpetration, bullying victimization).

Previously, when studying contextual influence, many researchers have incorrectly relied on individual-level statistics for hierarchical data. By using traditional multiple regression and assuming each observation is independent without accounting for the hierarchical nature of the data, correlated errors will likely occur, which violates one of the basic assumptions of multiple regression. Additionally, the standard errors of regression coefficients will be underestimated, leading to an overestimate of statistical significance.

Therefore, HLM improves the estimation of individual effects and models cross-level effects, allowing for analyses of the interaction of various contexts and its effects on bullying involvement. Three steps are involved in developing a two-level hierarchical linear model (HLM). In step 1, an unconditional model estimates if schools vary on the outcomes variables. In step 2, each of the Level 1 and Level 2 variables is then regressed on the outcome variable to determine their direct effects and if the slopes of these effects vary between schools. And in step 3, a final model is constructed using the results from the prior models to determine contextual and moderating effects.

First, a fully unconditional (null) model was estimated, which was analogous to conducting a one-way random effects ANOVA. Results from the model were used to determine the extent to which students within the same school were similar to each other in the frequency of bullying perpetration or bullying victimization (dependent variables). From this model, the intraclass correlation (ICC) was computed as an indicator of homogeneity within schools, denoting that schools differ in their mean bullying perpetration and victimization scores. Specifically, 4% of the variance in scores existed between schools for bullying perpetration, and the significant chi-square for the Level 2 variance component indicated a rejection of the null hypothesis that schools are equal on bullying perpetration ($\chi^2 = 79.59, p < .01$). Also, 4% of the variance in scores existed between schools for bullying victimization, and the significant chi-square

for the Level 2 variance component indicated that schools vary in regard to bullying victimization ($\chi^2 = 61.04, p < .01$).

PREDICTING BULLYING PERPETRATION

Next, models were estimated to determine whether independent variables affected bullying perpetration. At Level 1, bullying perpetration was regressed on individual influences (alcohol and drug use; depression/suicidal feelings), parental factors (communication, values, and caring), and positive peer influence measures. Only Level 1 variables that significantly predicted bullying perpetration were included in the subsequent Level 2 models. Factors that had significantly varying slopes were modeled in the final models as random.

For the model involving bullying perpetration, results suggested that the strongest predictor of bullying perpetration was greater alcohol and drug use ($\gamma_{01} = .44, p < .01$). Depression/suicidal feeling was also associated with more bullying perpetration ($\gamma_{01} = .13, p < .01$). Having positive peers was negatively associated with bullying perpetration ($\gamma_{01} = -.19, p < .01$) and perceiving one's parents as caring was also associated with less bullying perpetration ($\gamma_{01} = -.08, p < .01$); however, communication with parents and parental values was not significantly associated with bullying perpetration. Thus, for the purposes of simplicity, parental communication and values were not retained in Level 2 analyses in which school climate was evaluated as contextual influences of the association of parental caring, positive peers, and alcohol and drug use on bullying perpetration.

Examining models with the Level 2 variables as the independent variables and bullying perpetration as the outcome variable, results indicated a significant association between school mean Level 2 variables and bullying perpetration. Specifically, 50% of the variance at Level 2 was explained by school climate. A final model includes all Level 1 and Level 2 variables and tests for the moderating effects of Level 2 variables on individuals' bullying perpetration. Individuals' scores on Level 1 variables were first grand-mean centered and entered at Level 1. Centering the independent variables at Level 1 is recommended as a way to make the interpretation of the coefficients more meaningful (Raudenbush & Bryk, 2002). The school average scores on school climate were entered at Level 2, representing the hierarchy enhancing or attenuating nature of the school social environment.

School Effects

Results from the models with school climate as the Level 2 variable documented significant contextual effects between school climate and mean bullying perpetration ($\gamma_{01} = -.44, p < .05$). Thus, the effect of being in a positive school climate helps explain between-group differences in bullying perpetration. Results indicated a moderating effect of school climate on the association between parental caring and bullying perpetration ($\gamma_{11} = .56, p < .05$), the association between positive peer experiences and bullying perpetration ($\gamma_{11} = .69, p < .05$), but not on the association between alcohol and drug use and bullying perpetration ($\gamma_{11} = -.29, p > .05$). Overall, the association between low parental caring and bullying perpetration is minimized when students are in a positive school climate. Furthermore, for students from schools with a positive climate, bullying perpetration is less likely to be associated with negative peer influence.

PREDICTING BULLYING VICTIMIZATION

Next, models were estimated to determine whether independent variables affected bullying victimization. At Level 1, bullying victimization was regressed on individual influences (alcohol and drug use; depression/suicidal feelings), parental factors (communication, values, and caring), and positive peer influence measures. Only Level 1 variables that significantly predicted bullying victimization were included in the subsequent Level 2 models. Factors that had significantly varying slopes were modeled in the final models as random.

For the model involving bullying victimization, results suggested that the strongest predictor of bullying victimization was greater depression/suicidal feelings ($\gamma_{01} = .44, p < .01$). Positive peers and parental caring were also negatively associated with bullying victimization ($\gamma_{01}s = -.08, -.05, ps < .01$). Thus, for the purposes of simplicity, parental caring, positive peers, and depression/suicidal feelings were retained for Level 2 analyses in which school climate was evaluated as contextual influences on bullying victimization.

Examining models with the Level 2 variables as the independent variables and bullying victimization as the outcome variable, results indicated significant associations between school mean Level 2 variables and bullying victimization. Specifically, 51% of the variance at Level 2

was explained by school climate. A final model includes all Level 1 and Level 2 variables and tests for the moderating effects of Level 2 variables on individuals' bullying victimization. Again, individuals' scores on Level 1 variables were first grand-mean centered and entered at Level 1. The school average scores on school climate were entered at Level 2, representing the hierarchy enhancing or attenuating nature of the school social environment.

School Effects

Results from the models with school climate as the Level 2 variable documented significant contextual effects between school climate and mean bullying victimization ($\gamma_{01} = -.67, p < .05$). Thus, the effect of being in a positive school climate helps explain between-group differences of bullying victimization. Results indicated a moderating effect of school climate on the association between parental caring and bullying victimization ($\gamma_{11} = -.37, p < .05$), but school climate did not moderate the association between positive peer experiences and bullying victimization or the association between depression/suicidal feelings and bullying victimization. Overall, the association between low parental caring and bullying victimization is minimized when students are in a positive school climate.

A SOCIAL CONTEXTUAL PARADIGM FOR BULLYING AND PEER VICTIMIZATION

In 1970, Thomas Kuhn articulated a view of scientific knowledge and argued that science is both a continuous and discontinuous process and that a paradigmatic shift in understanding phenomena follows this cycle. He wrote, "To discover why this issue of paradigm choice can never be unequivocally settled by logic and experiment alone, we must shortly examine the nature of the differences that separate the proponents of a traditional paradigm from their revolutionary successors" (Kuhn, 1970, p. 94). The traditional paradigms that characterize our understanding of bullying and peer victimization have been instrumental to our knowledge base regarding these phenomena. However, we are also at a point where a paradigm shift is necessary for research in the area of bullying and peer victimization to have a significant impact on prevention and intervention practices.

Most examinations of bullying and peer victimization emanate from one theoretical viewpoint. Clearly, the ability to conduct science from a solid explanatory base allows researchers to design and conduct studies that are theoretically sound and empirically valid. However, in this chapter we echo our earlier call (Espelage & Swearer, 2003) that the paradigm through which we should be studying bullying and peer victimization is from social ecological theories. As Lewin (1936) formulated more than 70 years ago, behavior is a function of the person interacting with his or her environment. Thus, studying bullying and peer victimization without also taking into account the broader social environment does not make empirical or intellectual sense.

In this chapter we draw upon social control theory (Hirschi, 1969) and social disorganization theory (Shaw & McKay, 1969 [1942]) to augment social ecological theory (Bronfenbrenner, 1979) in order to illuminate the complexity underlying engagement in bullying perpetration and victimization. Combined, these social theories explain the individual, peer group, family, school, community, and cultural factors that, combined, provide a paradigm for understanding the reciprocal and complex dynamics that synergistically provide the groundwork for bullying and peer victimization.

The data reported here were collected across 27 schools in a Midwestern county. Not surprisingly, bullying perpetration differed across schools. Positive school climate was a strong moderator of bullying perpetration and victimization. Bullying perpetration was predicted by greater alcohol and drug use and depression/suicidal feelings. Thus, individuals who feel bad and who use alcohol and drugs are more likely to bully others. The influence of positive peers and perceiving one's parents as caring was associated with less bullying perpetration. Thus, peers and parents can have a positive influence on reducing bullying perpetration.

Perhaps the most important finding in this study was that positive school climate buffered the potentially negative impact of low parental caring and low positive peer influences on bullying perpetration and bullying victimization. Thus, it appears that students are drawing upon resources at school when faced with decisions regarding engagement in bullying, especially when their peers and parents are not a positive influence. These students report having positive relations with teachers, but most important, these students feel that their sense of academic efficacy is fostered in the schools. School-based interventions that focus on improving school climate through teacher-student closeness and fostering

of academic competencies could have a significant impact on the level of bullying perpetration and victimization in school.

Bullying victimization was associated with increased depression/suicidal feelings. While this study was not longitudinal, previous research has found that depressed individuals tend to be victimized (Neary & Joseph, 1994) and that students who are repeatedly victimized tend to become depressed (Andreou, 2000). Furthermore, as with bullying perpetration, having positive peers and perceiving one's parents as caring was associated with less bullying victimization. Thus, positive peers and caring parents can buffer the negative effects of being bullied. Positive school climate buffered the effect between low parental caring and bullying victimization.

These results support the social control/disorganization/ecological perspectives that provide a social contextual paradigm for understanding bullying perpetration and peer victimization. This is not surprising because no one lives in a vacuum; rather, individuals develop working models of the environments in which they live and they take these models into other environments (Bowlby, 1989). Given the complexity of studying these cross-level interactions, few studies have done so. It will be vital for furthering this paradigm shift by replicating this study in different samples and across time.

IMPLICATIONS FOR BULLYING AND PEER VICTIMIZATION PREVENTION AND INTERVENTION EFFORTS

We presented data that demonstrated how bullying perpetration can be predicted by engagement in risky health behaviors, such as drug and alcohol use; internal factors, such as depression and suicidal feelings; peer factors, such as negative peer influences; family factors, such as low parental caring; and school factors, such as negative school climate. Conversely, when students are happy, are not using drugs and alcohol, have a positive peer group, have caring parents, and go to school in a positive environment, bullying perpetration is low. Clearly, the social context in which students function is a critical prevention and intervention focus for reducing bullying among school-aged youth.

The finding that increased drug and alcohol use was associated with bullying perpetration suggests that bullying prevention programs that address substance use might display more positive results in curbing bullying perpetration. These programs are typically delivered in health

curricula, and adding bullying programming in these classes makes logical and empirical sense. In addition, depression and suicidal ideation were also predictive of bullying perpetration. Schools should participate in depression screening days and mental health professionals should be available to work with students involved in bullying perpetration and victimization.

Peers and families matter. It is very important that schools work with families to help create caring communities (Cowan, Swearer, & Sheridan, 2004) and that parents and teachers are aware of peer group dynamics. Too often the school assumes much of the responsibility of youth behaviors; however, these students are members of other communities, including churches, after-school programs, community agencies, and so forth. Parents and community members need to become more involved in the lives of their children and work together to create caring environments for youth. Bullying and peer victimization programs need to be expanded beyond the school building and include after-school programming, churches, and community agencies. Peer groups help to form the social interactions that, in turn, shape youth's social behavior. When peer groups are positive and families are supportive, the potential for bullying perpetration is reduced.

The social context in which individuals reside has great impact on their behavior. As Lewin (1936) wrote over 70 years ago, a person's behavior is the result of their interaction with their environment. If we hope to stop bullying behaviors among school-aged youth, then our prevention and intervention efforts need to target the social context in which students live.

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8

Sex Differences in Aggression From an Adaptive Perspective

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Researchers of animal behavior assume that behaviors exhibited species-wide provide an adaptive function (Tinbergen, 1950). This argument applies equally to costly behaviors that endanger the individual's survival and reproductive success. For these costly behaviors to be demonstrated consistently, they must provide large benefits. Aggressive behavior constitutes the perfect example of a costly behavior common to most members of mammalian species. Because any two individuals' goals cannot always be aligned, conflicts naturally erupt. Aggression provides a solution to the conflict. Yet, it is costly not only because it demands physical, emotional, and cognitive resources but also because it invites retaliation, thereby potentially harming the aggressor. From the perspective of an animal behaviorist therefore, aggression must provide significant benefits (de Waal, 1989). In this chapter, I offer a nontraditional view of aggression that suggests we can learn much of value by considering the adaptive features of aggressive behavior and how these functions might differ by sex.

AN ADAPTIVE APPROACH TO AGGRESSION FROM THE PERSPECTIVE OF ANIMAL BEHAVIORISTS

Critically, across mammalian species, the costs and benefits of aggression generally differ by sex (Campbell, 1999; Smuts, 1987; Trivers, 1972). Sex

segregation occurs in most mammalian species by the juvenile stage, consistent with the premise that individuals of each sex begin practicing to attain differing goals (Conradt, 1998).

Understanding sex differences in aggression from the perspective of a researcher of animal behavior therefore requires knowledge of the differing goals pursued and problems confronted by females versus males. Emlen and Oring's (1977) classic paper delineates these most precisely for mammals. Reproductive success of females is limited most by the food they can procure for themselves and their offspring. By contrast, male reproductive success is constrained by the number of females they can impregnate. Consequently, a basic tenet of animal behaviorists rests on the finding that across species, males benefit more reproductively by competing with one another over females, and females benefit more by caring for their offspring (Trivers, 1972). The higher rate of reproduction of some males translates into a large benefit if they can aggress successfully against other males. Whereas a male could compete intensely for status and sire many offspring, then die young without harming his reproductive success, a female could not.

The cost of producing a child, on the other hand, is much greater for females than males (Trivers, 1972). Females generally bear responsibility for the care and protection of offspring, beginning with gestation and lactation but continuing in most species for many years longer. Because the young of most mammalian species cannot survive without parental care, the female should avoid being hurt (Campbell, 1999). Should a female incur severe retaliation from another female, this would constrain her capacity keep of her offspring alive and to bear future offspring. Therefore, females should shun aggression that could potentially harm her capacity to bear offspring to a greater extent than males should.

Consistent with this conclusion, in her review of the primate literature Smuts (1987) finds that, on average, males engage in more intense physical aggression than females, whereas females engage in more low-grade, but continuous, aggression than males. This results from males' competing primarily to mate with females: Losing a reproductive opportunity has large consequences, so males fight vigorously over a mating opportunity. By contrast, losing a single piece of food has little consequence. The continuous need for food resources on the other hand produces constant low-level competition between females, particularly when food is scarce or clumped (Wrangham, 1987, 2000).

Humans of course differ from other mammalian species in several respects. First, human children are dependent for their survival on caregivers for longer than any other species (Lancaster, 1991). Even after

their child-bearing days have ended, women contribute to their children's success through helping to raise their grandchildren (Lahdenpera, Lummaa, Helle, Tremblay, & Russell, 2004). Second, like most avian species, human females frequently form longstanding bonds with males to help them raise their offspring. Women therefore frequently rely heavily on male partners to provide resources and protection for themselves and their children (Hewlett & Lamb, 2005; Hrdy, 1981; Lancaster, 1991). Nonetheless, women continue to bear more responsibility for children given humans' ubiquitous sexual division of labor (Marlowe, 2007).

Third, similar to only a handful of other mammalian species, lethal intercommunity warfare occurs between human males (LeBlanc & Register, 2003; Wrangham, 1999). An instructive example comes from one of humans' closest living genetic relatives, chimpanzees (*Pan Troglodytes*). In this species, as in most mammalian species, males compete fiercely over status and concomitant mating rights with females, but they also cooperate in all-male groups to defeat neighboring groups of males. By contrast, females exclude one another and generally avoid group cooperation (Wrangham, 1987, 2000). For both male chimpanzees and humans therefore, coalitionary aggression forms an unusual part of their behavioral repertoire.

Despite males' sharing in parental care across most human communities, the two basic tenets derived from studies of animal behavior provide a useful foundation from which to examine human aggression: (a) women benefit more than men do from prolonged investment in children and avoiding physical harm; and (b) men profit more than women do from engaging in sporadic but intense aggression that facilitates important goals: increasing their reproductive success through obtaining multiple matings; hunting to provide food and other important resources to their wives and children; and prevailing in occasional lethal intercommunity warfare.

Divergent goals of the two sexes therefore produce differing forms of aggression. To accomplish these goals, from early in life, children should begin to practice attaining them. Further, each sex should practice the forms of aggression tailored to satisfy the goals most successfully.

HUMAN SEX DIFFERENCES IN GOALS

This chapter will emphasize the theoretical basis for expecting human sex differences in peer aggression between same-sex but unrelated children based on the divergent tasks of women and men in most societies

using the principles of animal researchers. Aggression is defined as intent to inflict harm on another individual as commonly defined in the child development literature (Coie & Dodge, 1998). As in other mammalian species, children physically segregate themselves by sex beginning in early childhood (Maccoby, 1988; Whiting & Edwards, 1988), consistent with the premise that females and males begin practicing to attain differing goals.

This chapter will not consider studies of individuals who suffer from psychopathology. While severe and unacceptable instances of aggression elicit attention from clinicians whose job it is to diminish aggressive behavior and protect society, the clinical perspective ignores the more normative exhibitions of aggression that occur across virtually all mammalian species.

In most areas of the world and even in modern societies, the roles of women and men diverge considerably (Diekmann & Eagly, 2008; Eagly, 1997; Marlowe, 2007). Women still bear primary responsibility for child care, and men for physically strenuous tasks, such as hunting large animals, planting grains, large construction projects, and warfare. Additionally, men, like males of most other mammalian species, also compete more than females do for short-term sexual partners (Buss, 1989). In modern, mechanized, technologically based societies in which women bear fewer children and requirements for physical strength are reduced, greater overlap occurs between the roles of females and males (Archer, 2006). Thus, the information provided here applies to those women and men who pursue sex-differentiated goals.

Table 8.1 lists the goals that most females pursue, as well as reasonable conjectures about potential individuals who could prevent females from satisfying these goals and hence incite females to exhibit aggressive responses. Table 8.2 presents the same information for males. In each table, a hierarchy of strategies to attain divergent goals is displayed. While speculative, these hierarchies always suggest nonaggressive strategies before aggressive ones.

Women's Unique Goals

The critical difference between the sexes in the two tables consists of females' lesser need to engage in aggression to attain unique goals. As displayed in Table 8.1, females generally do not need to engage in aggression to satisfy their unique life history goals, unless their own or their children's survival is at stake. The clearest exception occurs during young

Table 8.1

FEMALE HIERARCHY OF STRATEGIES TO ATTAIN GOALS

FEMALE TASK	POTENTIAL AGGRESSORS	IDEAL STRATEGY	SECOND CHOICE	THIRD CHOICE
Attractiveness to potential marital partners	Female non-kin	Enhancement of attractiveness	Alliance with kin	Exclusion then denigration of competitors
Long-term marital partner	Female non-kin	Enhancement of attractiveness	Alliance with kin	Exclusion then denigration of competitors
Gestation and lactation	Infanticidal males, young adult female non-kin with children	Alliance with marital partner who can provide physical protection	Alliance with female kin	Avoidance of aggressors
Food, shelter, and clothing provisions for self and children	Female non-kin	Alliance with marital partner who shares genetic investment in children	Alliance with kin	Exclusion of competitors
Safety from inanimate objects	Unrelated peers	Alliance with female kin or older siblings of child	Alliance with trusted female non-kin	Alliance with marital partner
Physical protection of young children	Nonhuman animals, new male partners, adult female non-kin with children	Avoidance of aggressors	Alliance with marital partner who can provide physical protection	Physical aggression

adulthood in the many societies in which females marry as young women. Unless a woman’s marriage is arranged by her parents, it is highly probable that she will face at least some competition from same-sex peers for mates. Given that finding a suitable marital partner who can provide resources exerts a strong impact on a woman’s and her children’s survival and future success (McLanahan & Booth, 1991), women would be expected to compete over potential mates (Campbell, 2004). Empirical evidence supports this by demonstrating that female forms of aggression

Table 8.2

MALE HIERARCHY OF STRATEGIES TO ATTAIN GOALS

THREATENED MALE GOAL	POTENTIAL AGGRESSORS	IDEAL STRATEGY	SECOND CHOICE	THIRD CHOICE
Acquisition of societal skills linked to procurement of food, shelter, and other resources desired by marital partners, children, kin, and community members	Adult male kin and non-kin within community	Apprenticeship alliance with expert male kin and non-kin, including practice with physical aggression	Practice with non-kin and kin peers	Denigration of competitor
Short-term sexual partner(s)	Adult male	Showing off skills and threats of aggression	Physical aggression	Denigration of competitor
Long-term marital partner(s)	Adult male	Showing off skills and threats of aggression	Denigration of competitor	Physical aggression
Protection of individuals in community including marital partner, children, and kin	Adult male	Showing off skills and power	Physical aggression	Alliance with male kin and non-kin
Protection of community from invading communities	Young adult males in hostile, foreign communities	Alliances with male non-kin	Denigration of competitors	Physical aggression
Invasion of foreign community	Young adult males in hostile communities	Alliances with male non-kin	Denigration of competitors	Physical aggression

peak in adolescence and early adulthood when females are searching for marital partners (Archer, 2004; Archer & Coyne, 2005).

Logically, complete exclusion of all female competitors for marital partners would be ideal, but this is impractical given the social nature of human beings. Instead, it is more likely that a female should denigrate the attributes of her competitor and that she should be familiar with her competitor's attributes. This strategy of denigrating competitors likely

continues at a lower, but continuous, level throughout marriage as females attempt to maintain the integrity of their bonds with their marital partners, where single women, and even married women looking for extramarital affairs, present a continual threat.

Once a woman has formed a marital bond, however, there is less likelihood that she will need to engage in aggression, as she can rely on her husband to protect her and their children. A husband can protect a fertile woman from sexual predators, from stress-producing competitors who could disrupt her pregnancy, and from starvation when she is pregnant and requires extra calories to feed both herself and her fetus. Men also may play an important role in providing calories for a lactating woman and in helping a woman provision and protect her young children (Marlowe, 2003). Should the marital bond be weak or nonexistent, however, then female familial kin frequently compensate by helping to protect a woman and her children (Marlowe, 2005; Smuts, 1995). It is likely that only when women live in societies with few resources and far away from female kin and male partners who could provide help do women engage in intense forms of aggression (Campbell, 1984; Smuts, 1995).

Other unique roles of women, such as protecting children in early childhood at their most active period (Broidy et al., 2003) do not require aggression. Female kin, including the child's older female siblings, provide most benefits, as they express greater interest in children of this age than almost any other individual (Hewlett & Lamb, 2005; Lahdenpera et al., 2004; Whiting & Edwards, 1988). In modern societies and even hunter-gatherer communities, fathers also attend to children this age, though fathers may be less likely than mothers to remain continually vigilant, preferring to play sporadically with children rather than attend to them (Parke, 1996). Aggression against children, however, is unlikely unless children reside in polygynous families with scarce resources, in which they may be vulnerable to attacks from co-wives whose children are competing for the same resources (Borgerhoff Mulder, 1992). In these rare instances, a mother may have to engage in aggression to protect her children's welfare.

Nonhuman and human predators in all societies also can jeopardize children's safety. A mother's ideal strategy again is to protect her children from these sources of danger by avoiding ones she identifies as dangerous, then ensuring that her marital partner provides physical protection from dangerous animals or humans. Should an older child be in imminent danger, however, then a mother's strategy must be to physically aggress

instantaneously to ensure her child's survival. Overall, however, females often rely on males to provide protection, while the females themselves engage in little aggression, except when competing for mates, preserving their marital bonds, or protecting their children's lives.

Men's Unique Goals

By contrast, as displayed in Table 8.2, goals pursued by males frequently require aggression, not only because of competition with other males but also because in many societies, they bear responsibility for protecting and provisioning women and children and for engaging in cooperative aggression alongside other males. These additional goals therefore theoretically predict higher levels of aggression by males than females.

Because women more frequently bear responsibility for care of children, men are freer to pursue expertise in skills valued by society. Although acquisition of societal skills does not necessarily require aggression, for males who wish to publicize their expertise, demonstration of personal skills and denigration of others' skills provides an important means of showing off. Expertise and high status enhance success in intrasexual competition (Trivers, 1972) and attract sexual and marital partners (Buss, 1989).

Further, because males bear primary responsibility for physical protection of their marital partners, children, and other family members, physical aggression must be well-honed. When females select mates, they selectively choose those with demonstrated physical prowess, such as athletes and military men (Buss, 1989). Males who demonstrate physical prowess afford the greatest physical protection to a woman and her children (Nisbett & Cohen, 1996). Ideally, showing off physical strength while simultaneously directing physical threats toward potential adult male competitors for sexual or marital partners obviates the need for males to display actual physical aggression. Nonetheless, male fights over sexual partners constitute the number one source of altercations between young men (Archer & Benson, 2008; Daly & Wilson, 1988). Evidence demonstrates that men are most likely to initiate aggression individually when their sexual partners are insulted by another male (Archer & Benson, 2008; Daly & Wilson, 1988). Presumably, married men can attempt to denigrate potential competitors, so that their marital partners will be less enticed by them. Should an extramarital alliance develop between a man's wife and another man, however, physical aggression frequently results across diverse societies (Daly & Wilson, 1988).

A third source of aggression stems from males' primary responsibility for engagement in intercommunity warfare. Throughout human history, male groups have engaged in warfare with neighboring communities (LeBlanc & Register, 2003). Large coalitions of young males who are the physically strongest community members provide the best protection. Older males who oversee physical conflicts form critical coalition partners. When a community's males do not outnumber those of a neighboring community's males, the threat of invasion increases. Almost all societies therefore require at least some males to practice physical aggression aimed at neighboring communities.

For a human male, potential engagement in warfare requires honing physical strength and forming bonds both with male kin and unrelated males who are physically powerful, trustworthy, and willing to compete against hostile neighbors (Gat, 1999). Physically strong males, those with allies, and those with reputations for toughness are considered the most formidable opponents and therefore best able to protect sexual or marital partners (Archer & Benson, 2008).

SEX DIFFERENCES IN CHILDREN'S GOALS

In societies in which the adult roles of the two sexes diverge, girls and boys must prepare for these differing tasks. As evidence for the continuity between child training and sex-typed adult roles, Barry, Bacon, and Child's (1957) classic study of child-rearing practices in 110 cultures demonstrated that young girls were more likely than boys to be socialized to be nurturant, obedient, and responsible, whereas young boys were more likely to be trained to be self-reliant and achievement-oriented. Furthermore, the divergence of sex-typed socialization practices was connected directly with the degree of differentiation of adult roles adults in a culture. When fathers were not involved in child care because of polygynous households or because physical strength was crucial to the survival of the community, sex-differentiated socialization practices were greatest.

More recent cross-cultural research with children demonstrates that young girls train early to prepare for the entwined goals of caring for children and attracting a mate to help them obtain resources and status and provide physical protection that will contribute to their own and their children's survival and success (Belle, 1989; Goodwin, 1990; Nicolopoulou, Scales, & Weintraub, 1994; Paley, 1984; Whiting & Edwards, 1988).

For young girls in Western societies, a primary goal concerns maintaining the integrity of the family, and by age 4 years a large preponderance of their spontaneous stories revolve around this theme (Nicolopoulou et al., 1994). In particular, vulnerable individuals must be protected from dangerous external forces, and women must find men to marry. In non-Western cultures, by early childhood, young girls already are helping their mothers feed and protect their infant siblings. Beginning in early childhood, girls also focus on eligible males as marital partners. Dress-up and makeup are used to attract suitable mates (Paley, 1984). By middle childhood and adolescence, stories and games revolve around females finding attractive males to marry (Cassell & Jenkins, 1998).

By contrast, young boys engage in very different pursuits. Classically, throughout childhood and adolescence, males are encouraged by society to become skilled in the public pursuits the society values (Barry et al., 1957), though this is less true in more sexually egalitarian societies (Archer, 2006). Young boys develop expertise through their initial fascination with the way things work (Huston, 1987). Transportation vehicles, mechanical devices, gadgets, and construction engage many young boys in early childhood. By middle childhood, males describe their peers in terms of their expertise in a domain, such as academic skills, athletics, humor, art, music, and other pursuits, whereas females portray their peers in terms of their degree of kindness to others (Benenson, 1990). Critically, males show off their skills far more than females do, frequently denigrating the prowess of their same-sex peers (Goodwin, 1990; Lever, 1978; Maccoby, 1988; Maltz & Borker, 1982).

Further, from early childhood onwards, males practice physical power by enacting the roles of individual superheroes (such as Batman, Superman, or Spiderman), who fight ferocious animals, including sharks and tigers, enemy soldiers, criminals, invading aliens, and other potentially dangerous and unfamiliar creatures that they have not yet encountered (Benenson, Carder, & Geib, 2008; Gottman, 1986; Paley, 1984). Nicolopoulou et al. (1994) reports that at age 4 years during storytelling period in a preschool, a large preponderance of male stories concerned heroes violently confronting enemies. Violent virtual games become popular in early childhood and continue to captivate males throughout adolescence (Cassell & Jenkins, 1998). By middle childhood and continuing into adolescence, physical competition and aggression become group-based and males become superior to females in accurately ranking themselves and others in the dominance hierarchy (Benenson, Apostoleris, & Parnass, 1997; Edelman & Omark, 1973; Fine, 1980;

Savin-Williams, 1979, 1980). In adolescence, intergroup aggression develops in competitive contexts such as sports, gangs, rival institutions, or actual warfare (Bellamy, 2002; LeBlanc & Register, 2003; Maccoby, 1998; Sherif et al., 1988; Wrangham & Wilson, 2004). Given that girls and boys prepare for divergent adult roles even in Western societies, they should practice sex-typed forms of aggression tailored to satisfy these unique goals.

SEX DIFFERENCES IN PEER AGGRESSION IN CHILDHOOD AND ADOLESCENCE

Many excellent empirical reviews of sex differences in childhood aggression already exist (Archer & Coyne, 2005; Card, Stucky, Sawalani, & Little, 2008; Maccoby, 1998; Maccoby & Jacklin, 1974; Underwood, 2003). Most psychological research on children's peer aggression has been conducted in Western schools that are age-graded. This means that factors that naturally differentiate children, such as age, height, skill levels, as well as access to physical resources and to kin, are constrained and not investigated. Further, residence patterns in terms of proximity to kin, marital structure, social structure, dominance rank, alliances, and familiarity—fundamental variables in investigations of other species' aggression—also generally remain neglected in the human literature. Nonetheless, the extant psychological literature provides the most detailed insights available into sex differences in peer aggression.

This chapter will examine 10 forms of aggression and relate them to research derived from the animal behavior literature. Many of them overlap, but the distinctions occur in both the animal behavior and child development literatures, so they are preserved here. Table 8.3 lists the 10 forms, provides examples of each, the prediction of a sex difference based on the animal behavior literature, and evidence for sex differences from the literature on child development. The 10 forms of aggression consist of intensity, frequency, presence of the target, clarity of intent, display of anger, physical contact, verbal message, communication gestures, number of aggressors, and the aggressor's relation to target, as displayed in Table 8.3.

Because of women's greater responsibility for child care and reliance on male partners and female kin for aid in child care, female forms of aggression should differ from those of males in ways consistent with the goal of continually providing for their children's survival

Table 8.3

SEX DIFFERENCES IN FORMS OF AGGRESSION IN CHILDREN AND ADOLESCENTS

FORM OF AGGRESSION	EXAMPLES	PREDICTED SEX DIFFERENCE BASED ON ANIMAL LITERATURE	EMPIRICAL EVIDENCE FROM RESEARCH WITH CHILDREN AND ADOLESCENTS
1. Intensity	Homicide versus hitting; fury versus irritation	Males > Females in intensity of aggression to obtain mates and in war	Supports prediction
2. Frequency	Continuous versus sporadic physical threats; continuous versus sporadic disparaging comments	Females > Males in frequency of aggression because of continual need to provision offspring and possibly protect marital bond	Untested
3. Presence of target	Stealing target's resources in target's presence (directly) or in target's absence (indirectly); Disparaging target in target's presence (directly) versus in target's absence (indirectly)	Males > Females in aggressing in presence of target because too risky to females' survival and reproductive success	Supports prediction
4. Clarity of intent to harm target	Clearly aims for and hits target (overt) versus appears to accidentally hit target (subtle); clearly denigrates target (overt) versus disguises negative view of target by including positive perspective as well (subtle)	Males > Females in clarity of intent to harm because too risky to females' survival and reproductive success	Supports prediction
5. Emotion	When hitting target, expresses anger or pleasure versus no clear emotion; when critiquing target, expresses anger or pleasure versus no clear emotion	Males > Females in expression of anger because too risky to females' survival and reproductive success	Supports prediction

6. Physical contact	Hitting versus threatening to hit; hitting versus yelling; hitting versus exhibiting distaste for target	Males > Females in physical contact because too risky to females' survival and reproductive success and because aggression over mates and in warfare requires contact	Supports prediction
7. Verbal message	Disparaging comments versus hitting in silence; screaming versus hitting in silence	No animal data	Untested
8. Nonverbal gestures	Rolling eyes versus straight facial expression; exhibiting disturbing bodily gesture versus none	No animal data	Untested
9. Number of aggressors	Individual attack on target versus coalitional attack	Males > Females due to war	Supports prediction
10. Goal of aggressor with respect to target	Target's resources; target's characteristics (character defamation), target's social exclusion; destruction of target	Females > Males take target's resources to provision children	Defies predictions
		Males > Females defame target's character (enhance own status) to enhance mating success	Supports prediction
		Males > Females destroy target in warfare	Supports prediction
		Females > Males exclude target—no animal data	Untested

and reproductive and societal success. Likewise, men's greater capacity to produce high numbers of children through competing with other males and their greater responsibility for provisioning and protection of their sexual partners as well as the entire community should produce uniquely male forms of aggression.

Intensity of Aggression

Consistent with males' greater involvement in intrasexual contests over mates and protection of sexual and marital partners as well as the entire community, studies conclusively demonstrate that, as early as it can be measured, intense aggression, whether physical or verbal, occurs more often between boys than girls and peaks in late adolescence and early adulthood when males are physically strongest. Sex differences in intense physical and verbal aggression appear in infancy and continue throughout adolescence (Broidy et al., 2003; Maccoby & Jacklin, 1974; Moffitt, Caspi, Rutter, & Silva, 2001). In young children, physical aggression includes biting, hitting, kicking, chasing, grabbing, pulling, pushing, and throwing objects (Broidy et al., 2003; Maccoby & Jacklin, 1974; Strayer & Noel, 1986). Later forms involve more serious assaults with weapons (Daly & Wilson, 1988; Moffitt et al., 2001).

The magnitude of sex difference in severity or intensity of physical aggression increases the more intense the aggression. Cross-culturally, rates of the most intense form—homicide—are 10 times higher for males than females (Archer, 2004; Daly & Wilson, 1988; Maccoby & Jacklin, 1974). Verbal aggression is less intense than physical aggression, so the magnitude of the sex difference is reduced but remains consistently true across societies (Archer, 2004).

When adolescent females engage in intense forms of aggression, they generally fight over mates who can provide resources for themselves and their children (Campbell, 2004). Occasionally, young women from poorer socioeconomic backgrounds physically aggress against another young woman to decrease the competitor's attractiveness to men (Burbank, 1987; Campbell, 2004). Such female physical aggression usually assumes the form of hair pulling, scratching, wrestling, kicking, biting, hitting, and punching, which inflict minor injuries relative to the more lethal male forms that typically involve deadly weapons (Daly & Wilson, 1988). Poisoning constitutes one of the most lethal forms of female aggression, yet involves little threat of retaliation (Burbank, 1987).

Frequency (Continuous vs. Sporadic) of Aggression

No evidence supports Smuts' prediction from the animal behavior literature that girls engage in more continuous forms of aggression than boys. This is because no research has examined sex differences in continuous versus sporadic forms of aggression in children. Future research would illuminate whether sex differences in children parallel those obtained in nonhuman animals.

Presence of Target

Women's prolonged responsibility for child care means that engaging in direct aggression is prohibitively costly due to the risk of being hurt and unable to ensure children's survival and future reproductive success. In fact, from early childhood throughout adulthood, human females engage in less risky behavior in general than males do (Byrnes, Miller, & Schafer, 1999). Consistent with this, a recent meta-analysis demonstrates that boys engage in more direct forms of aggression in which the target is present than girls do (Card et al., 2008).

Indirect aggression provides a perfect solution for girls, because an absent target is unable to retaliate. Bjorkqvist (1994) studied indirect forms of aggression in children and adolescents in which the aggressor harms a target in the target's absence. Examples of indirect aggression consist of persuading others to engage in physical aggression in the aggressor's stead, public humiliation of a target outside the target's earshot, displaced aggression aimed at a weaker individual (a scapegoat) who could not possibly inflict harm on the aggressor, and exclusion of the target without the target's knowledge.

In one of the best reviews of sex differences in aggression in childhood through adolescence, Archer (2004; Archer & Coyne, 2005) combines many forms of nonphysical aggression including social exclusion and ostracism, practical jokes, ignoring the target, anonymous notes, dirty looks, manipulation of social acceptance, character defamation, as well as aggression in the absence of the target. Unfortunately, he did not distinguish between those forms that occurred in the presence versus absence of the target. Nonetheless, when absolute sex differences in this combined measure are examined, Archer found that females engage in slightly higher levels of this mixed form of aggression and that the sex difference is maximal in adolescence. Sex differences in indirect aggression defined as occurring only in the target's absence may in fact be much larger.

In an important experimental demonstration of females' greater use of indirect aggression in the target's absence, Underwood, Scott, Galperin, Bjornstad, and Sexton (2004) examined the reactions of same-sex pairs of children (10–14 years of age) toward an unfamiliar peer who was trained as a confederate to behave unpleasantly towards the pair. The researchers utilized a mixed definition of aggression (defined as verbal social exclusion, verbal aggression, verbal assertion, and social exclusion gestures). But the critical variable was the pair's reaction in the presence versus absence of the unpleasant confederate. In the presence of the unpleasant peer, boys engaged in greater frequencies of all four forms of aggression. In the absence of the unpleasant peer, girls' and boys' aggression occurred at similar levels, with verbal comments concerning social exclusion constituting the most frequent form of aggression for both sexes.

Clarity of Intent to Harm Target

Following the same logic of risk reduction, girls should engage in more subtle forms of aggression than boys. When the clarity of intent to harm remains obscured, opportunities for retaliation are minimized even when it occurs in the presence of the target. Risk is minimized because of a delay between a subtle expression of aggression and its identification as aggression by the target, thereby permitting the aggressor to exit or switch topics. Little empirical research exists on sex differences in the use of subtle aggression, but two studies support the conclusion that females identify more subtle forms of aggression that males may not even notice. Compared to boys, girls reported more instances of same-sex peers rolling their eyes or snubbing their noses at them (Paquette & Underwood, 1999) and more frequent receipt of dirty looks (Coyne, Archer, & Eslau, 2006). This reporting difference may be due to girls' greater use of this form of aggression, or alternately, to girls being more negatively influenced by it (Galen & Underwood, 1997). Again, future research must determine whether compared to boys, girls use more subtle forms of aggression.

Emotion

Because expressions of anger raise expectations for potential aggression and invite retaliation, females should suppress anger displays, and research overwhelmingly demonstrates that they do. In reviews of sex differences in the expression of anger from infancy through adulthood,

Archer (Archer, 2004; Potegal & Archer, 2004) demonstrates that males display more anger than females from infancy onwards, but the sex difference emerges most clearly beginning around 4–5 years. By this age, studies demonstrate that girls consciously struggle to suppress expressions of anger and that parents train girls not to use anger words or expressions. By middle childhood and continuing through adulthood, anger becomes associated with power and pride for boys and men, and with loss of control and shame for girls and women (Campbell & Muncer, 1987). Critically, no sex differences arise in self-reported feelings of anger, supporting the theory that females benefit from lack of its expression (Potegal & Archer, 2004).

Little investigation has occurred into the relation between emotions, particularly anger, and forms of aggression. Whereas anger likely propels individuals into aggression, and restraining anger displays may reduce aggressive behavior, aggression can occur without anger. Individuals fighting wars (Bourke, 1999) or obeying orders, such as in Milgram's (1961) classic study of obedience, may not feel angry, yet they fully intend to inflict harm on the target. Whether the sexes differ in the relation between feelings or expression of anger and aggressive behavior remains to be explored.

Importantly, pleasure also is associated with aggression. Behavioral and neurological evidence suggests that from early childhood through adulthood males derive more pleasure than females from participating in physical aggression (Benenson, Carder, & Geib-Cole, 2008; Bourke, 1999; Singer et al., 2006). Singer et al. (2006) demonstrate that the pleasure centers of men's brains were more active than those of women when they observed a target who behaved unfairly receiving an electric shock. From early childhood onward through adolescence, playing soldiers, killing opponents in video games, or destroying enemies in real life elicits excitement and positive emotions in males. Indirect aggression, however, may provide more pleasure for females than males, as older adolescent females spend a significantly higher proportion of their conversational time negatively denigrating an absent same-sex peer (Leaper & Holliday, 1995). Again, further research is necessary to understand the relation between emotional experiences and aggressive behavior.

Physical Contact, Verbal Messages, and Nonverbal Gestures

Three forms of aggression—making physical contact, conveying verbal messages, and exhibiting nonverbal gestures—fit readily on a continuum

with highly intense, target present (direct), clear intentional to harm at one end (overt) and low intensity, target absent, and ambiguous of intent at the other end. The former invites retaliation, whereas the latter minimizes it. For example, punching a target increases the risk of retaliation, whereas disparaging a peer in the peers' absence greatly reduces it. To diminish probability of incurring physical harm, a girl should avoid the former and preferentially utilize the latter. The evidence strongly supports this. A much greater proportion of girls' versus boys' aggression is of the noncontact, indirect, and subtle form (Archer, 2004; Archer & Coyne, 2005; Bjorkqvist, 1994; Daly & Wilson, 1988; Maccoby & Jacklin, 1974). What remains unclear is whether girls engage in higher absolute levels of verbal, indirect, and subtle aggression than boys do (Archer, 2004; Card et al., 2008).

Number of Aggressors

Individual versus coalitionary aggression constitutes a major focus of the animal behavior literature but is neglected in human research. A coalition involves two or more individuals who coordinate their aggressive behavior towards one or more targets. In his seminal studies of bullying (defined as repeated aggression by a stronger individual towards a weaker one) in over half a million children and adolescents in Norway and Sweden, Olweus (1993) estimates that approximately 60% of bullying is coalitionary with the bully accompanied by 1–2 other peers, whereas the remainder is one-on-one. Because boys were far more likely than girls to bully, males likely engage in higher rates of coalitionary aggression. However, little is known regarding girls' bullying, as Olweus found it more difficult to identify. Consistent with males' greater participation in warfare, boys more than girls form large group coalitions. Beginning in middle childhood, cross-culturally males organize themselves into large, interconnected groups, whereas females are more likely to interact with one individual at a time (Fine, 1980; Savin-Williams, 1980). Large group formations increase aggression both internally and externally across a variety of species (Wrangham, 1987). Internally, groups increase aggression because the larger the number of individuals within a group, the fewer the resources and the more conflicts of interest that arise (Bales & Borgatta, 1955; Benenson, Nicholson, Waite, Roy, & Simpson, 2001). Groups also augment aggression because alternate partners are available, allies can step in to control conflicts, and loyalty to a larger entity mitigates the consequences of individual conflicts. Thus, boys most

probably engage in more aggression overall than girls, partly because they structure themselves in groups.

Externally, groups also enhance aggression because the larger the number of individuals within a group, the more aggressive the group becomes towards other groups (Schopler & Insko, 1999). This discontinuity between interindividual versus intergroup aggression has been demonstrated repeatedly with adults but also applies to research with children. Factors explaining the effect include the anonymity that large groups afford and the competition that frequently arises with the out-group due to in-group biases (Tajfel, 1970).

Group-based competition begins in middle childhood, and it is far more frequently practiced by boys than girls in both formal and informal settings (Belle, 1989; Benenson et al., 1997). In a classic seminaturalistic experiment at a summer camp in Oklahoma, Sherif and his colleagues (Sherif, Harvey, White, Hood, & Sherif, 1988) demonstrated that when two groups of unfamiliar 11-year-old boys from Oklahoma became engaged in competition with one another, aggression developed in the form of ransacking and burning of others' property, thefts, coalitionary exclusion of the other group, derogatory comments, and name-calling. In adolescence, gang warfare also occurs primarily between groups of males (Wrangham & Wilson, 2004), with all-girl gangs constituting a tiny fraction of total gangs, though girls occasionally organize a subsidiary gang attached to a larger male gang (Campbell, 1984).

Goals of Aggressor With Respect to the Target

A final form of aggression concerns the goal of the aggressor with respect to the target, and I mention four here: (a) acquisition of resources, (b) character denigration, (c) complete destruction of the target and (d) social exclusion. Contradicting predictions from the animal literature that females more than males utilize aggression to acquire basic resources for their own and their children's survival, the human literature demonstrates that boys are more likely than girls to take a target's resources. The inconsistency may arise from women's heavy reliance on men to provide food and other resources. Nevertheless, this sex difference emerges by early childhood (Jacklin & Maccoby, 1978). At the more extreme end, by age 10 years males exceed females in rates of criminal theft (Moffitt et al., 2001). Whereas subsets of both sexes engage in theft in middle childhood and adolescence, particularly individuals from resource-deprived backgrounds, the subset of females is smaller than that of males.

Consistent with the prediction from the animal literature that males aggress against other males to attain status more than females in order to outperform same-sex peers and better attract mates, boys practice character denigration more than girls do. Olweus (1993) concludes from his research on physical and verbal bullying that the bully's goal is to demonstrate dominance over another individual, thereby increasing the aggressor's status, power, and feelings of superiority, and males bully more than females do. Furthermore, abundant research on speech forms demonstrates that from early childhood through early adulthood males in general are more likely than females to attempt to dominate same-sex peers through their more frequent use of commands, boasts of authority, bragging, winning of arguments, public shaming, making fun of, shouting, heckling, ridicule, threats, taunts, name-calling, topping of stories, belittling remarks, curses, derisive jokes, refusals to comply with another's requests, and provision of information (Goodwin, 1990; Leaper & Ayres, 2007; Maccoby, 1990; Maltz & Borker, 1982; Savin-Williams, 1976; Whiting & Edwards, 1988). By adolescence and young adulthood, males more than females negotiate public status, become concerned that their standing remain unblemished, and exhibit greater willingness to fight those who challenge their status (Daly & Wilson, 1988; Nisbett & Cohen, 1999; Savin-Williams, 1979).

When females do engage in character denigration, it occurs indirectly—in the absence of the target (Leaper & Holliday, 1995; Underwood et al., 2004). In public, beginning in middle childhood and continuing into young adulthood, girls frequently would rather lose than win same-sex competitions and often will refuse to behave aggressively to attain superior outcomes for themselves (Benenson & Schinazi, 2004; Lever, 1978; Stulmacher & Walters, 1999). Whereas in adolescence girls frequently attempt to join the popular female clique and indirectly defame the characters of popular girls with the hopes of replacing them (Eder, 1985), it remains unclear whether they engage in the same intensity or frequency of character denigration as boys do.

Also consistent with mammalian findings, males engage in total destruction of targets more frequently than females do. This highly costly form of aggression is practiced generally only when individuals within a society fight over sexual partners or for those few species that engage in lethal intercommunity aggression. This extreme form of aggression, whether homicide against a community male or participation in warfare as a group against another community's males, rarely emerges before

adolescence (Daly & Wilson, 1988). Nonetheless, child soldiers have been documented as young as age 7 across the world (Bellamy, 2002).

A final goal of the aggressor consists of social exclusion of the target. This goal has not been examined in the animal literature, though recent research documents the benefits to a female of inclusion in the social group (Silk, Alberts, & Altmann, 2005). In contrast, social exclusion reduces the advantages that groups provide to an individual, such as protection from predators and information about food.

In the child development literature however, social exclusion recently has received intense scrutiny. Nicki Crick (1995; Crick & Grotpeter, 1995) and Robert Cairns (Cairns, Cairns, Neckerman, Ferguson, & Garipey, 1989) introduced the novel idea that girls are more likely than boys to engage in social exclusion, along with other forms of relationship manipulation. Coalitions provide a bulwark against retaliation from lone targets due to the imbalance of power. Therefore, they constitute a less risky aggressive strategy than one-on-one aggression and consequently might prove more appealing to females. They simultaneously diminish competition over resources by minimizing the number of competitors.

Much research demonstrates that girls' same-sex peer relationships are more exclusive than their male counterparts. From early childhood through adulthood, females frequently interact with only one same-sex peer at a time, whereas males prefer large groups (Benenson et al., 1997; Markovits, Benenson, & Dolenszky, 2001). Pairs of females are less welcoming than male pairs to a newcomer in early childhood and adolescence (Feshbach, 1969; Feshbach & Sones, 1971). Additionally, female triads are more likely than male triads to degenerate into pairs through exclusion of one member (Eder & Hallinan, 1978).

Social exclusion may diminish the threat of coalitions that may pose a greater threat to females than males (Galen & Underwood, 1997). That girls more than boys limit the size of their social networks so that their same-sex friends are not friendly with one another (Benenson, 1990; Markovits et al., 2001) and exhibit more jealousy than boys should their friends become friendly with one another (Parker, Low, Walker, & Gamm, 2005) suggests a fear of coalitions. Supporting the greater potential danger of female coalitions, two experimental studies demonstrated that when resources were scarce, 4-year-old and 10-year-old girls were more likely to form coalitions and exclude another child than were males (Benenson, Antonellis, Cotton, Noddin, & Campbell, 2008; Benenson, Hodgson, Heath, & Welch, 2008).

Finally, anecdotal evidence suggests that girls practice social exclusion of friends more than boys do. In her participant-observation of female adolescents, what captured Simmons' (2002) attention was the willingness of girls to aggress against their friends: to fabricate wrongdoings of a friend, to gang up on a friend, to abandon a close friend, to pit one friend against another, to betray secrets of a friend, and to deny culpability to the friend. That girls exclude friends suggests the need to decrease the competition. In contrast, when boys exclude other boys, the targets classically have consisted of unathletic, socially awkward boys who already avoided interaction with their male peers, not former friends (Olweus, 1993; Savin-Williams, 1976, 1979; Tuddenham, 1951). More research is necessary to examine whether sex differences exist in willingness to exclude same-sex peers who serve varying functions in the aggressor's pursuit of goals.

CONCLUSIONS

Research on sex differences in aggression in childhood is mostly consistent with predictions from the mammalian animal behavior literature. Girls' and boys' goals differ, and girls generally use less risky forms of aggression to attain their goals than boys do. Overall, boys would be expected to use higher absolute levels of aggression, simply because more of men's goals require aggression. A higher proportion of girls' aggression, however, should be low in risk relative to boys' aggression.

Whereas biological factors constrain sex differences in aggressive responses to some extent, culturally prescribed sex differences in goals exert a large influence. Cultural transformations that produce greater convergence in the roles of females and males consequently will diminish sex differences in life goals and concomitantly differing forms of aggression. As females rely less on males for provision of resources and protection, and as warfare diminishes, males' physical aggression will decline. As females become more self-sufficient, they will be less likely to compete over males who can supply resources. Should males engage in greater care of children, they will utilize less risky forms of aggression.

From the perspective of an animal behaviorist, aggression, a highly costly behavior, occurs because its benefits outweigh its costs. When individuals pursue critical goals, they frequently encounter same-sex individuals with the same goal in mind. When both cannot simultaneously

attain the goal, aggression is a natural response. Educators and clinicians who work with children would be wise to acknowledge the beneficial aspects of aggression. A natural part of socialization involves training children to adapt to society's norms for aggression, which vary markedly in accordance with adults' use of aggression. Only when aggression violates societal norms do adults become concerned.

In an ideal world, aggression would be unnecessary because all individuals could obtain enough resources. In practice, individuals should learn to recognize forms of aggression they and their peers employ and attempt to diminish the harm of these strategies while acknowledging their utility. It is doubtful that aggression will ever completely disappear, because conflicts between individuals inevitably arise. As both children and adults become increasingly conscious of the functions of aggression, however, they can become better able to protect themselves and others from serious harm.

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Rejection and Relational Aggression

PART
IV

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9

The Pain of Exclusion: Using Insights From Neuroscience to Understand Emotional and Behavioral Responses to Social Exclusion

C. NATHAN DEWALL

Humans abhor social exclusion and relish social acceptance. Historically, social scientists have emphasized the importance of people having interpersonal bonds. There has been less agreement, however, regarding *why* humans have a natural propensity to establish and maintain interpersonal relationships. The current chapter discusses recent efforts to understand why people are fundamentally desirous of interpersonal acceptance and react strongly to social exclusion. Using theoretical and empirical insights from neuroscience as a guide, I argue that social exclusion represents such a basic and severe threat to human well-being that the body encodes the experience of social exclusion in a manner that is similar to physical pain. Hence people are motivated to avoid social exclusion in the same way they are naturally motivated to avoid physical pain. I review recent evidence that supports the notion of common neural overlap between social and physical pain mechanisms. Moreover, I discuss how understanding the body's responses to social exclusion can help explain some of the behavioral effects of social exclusion. Finally, I propose an intervention strategy designed to ameliorate socially painful feelings using over-the-counter analgesics.

WHY IS SOCIAL EXCLUSION IMPORTANT?

Most psychologists agree that people have a fundamental motivation to have a few positive and lasting relationships in their lives. Baumeister and Leary (1995) suggested that people have a need to belong that is deeply rooted in evolutionary history and has consequences for modern psychological processes. To understand the importance of belonging, psychologists often study how chronic or acute threats to belongingness influence physical, cognitive, emotional, and behavioral outcomes.

Social exclusion negatively impacts a variety of health outcomes. Compared to people who have a strong sense of connectedness, people who feel chronically excluded have lower-quality sleep (Cacioppo, Hawkley, & Berntson, 2003), poorer immune system functioning (Kiecolt-Glaser et al., 1984), and a higher likelihood of death following myocardial infarct (Berkman, Leo-Summers, & Horowitz, 1992). Simply living alone (as opposed to living with others) is a potent risk factor for mortality and morbidity (House, Landis, & Umberson, 1988). A lack of social connectedness also relates to poor daily health. Lonely people experience higher daily total peripheral resistance (TPR) and lower cardiac output (CO) than do nonlonely people (Hawkley, Burleson, Berntson, & Cacioppo, 2003). These findings suggest that chronic feelings of exclusion adversely relate to various indicators of long-term and short-term physical health.

Exclusion also reduces the tendency for people to behave in ways deemed desirable by most societies. Laboratory manipulations of social exclusion increase aggression and decrease prosocial behavior (Buckley, Winkel, & Leary, 2004; Crescioni & Baumeister, this volume; Gaertner, Iuzzini, & Omara, 2008; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007; Warburton, Williams, & Cairns, 2006). In one study, excluded people blasted a stranger with more intense and prolonged aversive noise than did nonexcluded people (Twenge, Baumeister, Tice, & Stucke, 2001). Excluded people also engage in self-defeating behaviors more so than do nonexcluded people (Twenge, Catanese, & Baumeister, 2002). When given time to study for an upcoming math test, for example, excluded people procrastinated more (e.g., read entertaining magazines) compared to nonexcluded people.

Social exclusion reduces willingness to engage in self-control (Baumeister, DeWall, Ciarocco, & Twenge, 2005). Self-control refers to the ability to override impulses in order to remain in agreement with standards for appropriate responding (Baumeister, 1998). People often control their impulses to obtain the benefits of belonging to a group. When

people experience social exclusion, they are less likely than nonexcluded people to gain the benefits of group membership that normally accompany effective self-control. As a result, socially excluded people are less willing to control their impulses relative to people who do not experience social exclusion. When good self-control is linked to the possibility of gaining social acceptance, however, excluded people regain their willingness to control their impulses and perform quite well on many self-control tasks (DeWall, Baumeister, & Vohs, 2008).

There is also some evidence that social exclusion reduces willingness to exert effort on intellectual performance tasks. Laboratory manipulations of social exclusion cause people to perform worse on IQ tests, logical reasoning activities, and reading comprehension tasks compared to people who do not experience exclusion (Baumeister, Twenge, & Nuss, 2002). Excluded people perform well on intellectual tasks that require little mental effort (i.e., rote memorization). If social exclusion causes widespread impairment in how the brain processes stimuli (instead of merely reducing the motivation to exert mental effort), then people who experience social exclusion should show deficits on both rote memorization and logical reasoning tasks. The unique effect of social exclusion on effortful intellectual activities suggests that motivation (as opposed to ability) is driving the negative effects of social exclusion on intellectual performance.

The implication from these findings is that social exclusion makes people unhealthy, aggressive, unhelpful, irrational, and (at least temporarily) unwilling to behave intelligently. Moreover, many of the responses that follow from experiencing social exclusion likely preclude the possibility of excluded people regaining a sense of social belonging. Aggressive people, for example, are often excluded; aggressive children are ostracized, and violent adults are imprisoned (Gottfredson & Hirschi, 1990; Juvonen & Gross, 2005). Why would rejected people behave aggressively when doing so would undermine their ability to restore their fundamental need to belong?

A plausible explanation is that rejection causes emotional distress, which in turn produces irrational and even antisocial behavior. A large body of evidence has shown that emotional distress causes people to make suboptimal decisions (Greeno & Wing, 1994; Heatherton, Herman, & Polivy, 1991; O'Guinn & Faber, 1987). Given the importance of establishing and maintaining positive and lasting relationships, it would seem intuitive that people would respond to real or potential threats of social exclusion with strong emotional reactions (Baumeister & Tice,

1990). Thus, there are theoretical and empirical reasons for predicting that the irrational, self-defeating, and antisocial responses that often follow social exclusion are due (at least in part) to emotional distress.

Because the exclusion-distress link is so intuitively appealing, it is both surprising and noteworthy that many laboratory studies have shown that social exclusion produces a state of emotional numbness and detachment. Using multiple measures of emotion and manipulations of social exclusion, results demonstrate that socially excluded people often report emotional states that do not differ from nonexcluded people. Indeed, results from a recent meta-analysis of 165 experiments revealed a relatively small average effect of social exclusion on emotional distress ($Z = 0.25$) (Blackhart, Knowles, & Bieda, 2007). The behavioral effects of social exclusion, in contrast (e.g., aggression), tend to exceed conventional criteria used to describe large effect sizes (Cohen, 1977). Even when differences in emotion are found between socially excluded and nonexcluded people, these differences do not mediate the behavioral effects of exclusion (e.g., Buckley et al., 2004; Williams, Cheung, & Choi, 2000). The failure of emotional distress to mediate the behavioral effects of social exclusion baffled researchers initially. Recently, however, social exclusion researchers have used these unexpected results to develop new theories regarding how people respond physically and emotionally to immediate instances of social exclusion.

WHY DOES SOCIAL EXCLUSION PRODUCE EMOTIONAL NUMBNESS?

One reason why social exclusion frequently produces emotional numbness is that exclusion causes a defensive state of cognitive deconstruction. Cognitive deconstruction is characterized by emotional numbness, lethargy, perceptions of meaninglessness, altered perception of time, and avoidance of self-focused attention (Baumeister, 1990). People enter into a deconstructed state when they experience personal failure or when it becomes abundantly clear that they are inadequate on some personally or socially desirable trait. When in a state of cognitive deconstruction, people are prone to make irrational decisions and to show an unwillingness to delay gratification so as to meet their long-term goals. Baumeister (1990) proposed that cognitive deconstruction characterizes presuicidal mental states and may indeed have implications for explaining why people die by suicide. Laboratory studies have

provided overwhelming support that social exclusion produces each of the symptoms associated with cognitive deconstruction (Twenge, Catanese, & Baumeister, 2003). Thus, one reason why socially excluded people report relatively numb or detached emotional states is due to the fact that they are in a deconstructed state.

The deconstructed state may have positive benefits to the socially excluded individual, insofar as emotional numbness protects the excluded person from a potentially negative emotional experience. Such benefits are likely short-lived, however. People who show prolonged signs of deconstruction (e.g., emotional insensitivity, lethargy) frequently meet criteria for diagnosis of various mental disorders (Blair, 1995; Bylsma, Morris, & Rottenberg, 2008). Even in nonclinical populations, chronic emotional insensitivity is linked to a variety of self-destructive behaviors (Baumeister & Scher, 1998).

If social exclusion produces an immediate defensive response designed to attenuate emotional distress, then it is possible that social exclusion impairs the capacity for people to experience emotions in a normal manner. This defensive response might have consequences not only for the ability for socially excluded people to experience their own emotions, but it may also impair excluded people's ability to respond emotionally to others. Without a fully functioning emotion system, social exclusion may also reduce the capacity for people to detect and respond to physical pain. The next section will expound on this possibility. I review theory and evidence suggesting that the defensive emotional reactions that accompany social exclusion are due to a pervasive state of emotional numbness. I then provide evidence suggesting that impairments in the emotion system following social exclusion relate to physical insensitivity to pain.

SOCIAL AND PHYSICAL PAIN

People commonly use words related to physical pain to describe romantic break-ups, being left out by a group of friends, or being rejected by co-workers or classmates. For example, excluded people often say their heart is "broken," that they feel "crushed," and that their feelings are "hurt" (Leary & Springer, 2000). Is pain merely a metaphor to describe experiences such as social exclusion? Or, instead, is there common neural overlap between how the body responds to physical pain and socially painful events such as social exclusion? In an influential review of the literature,

MacDonald and Leary (2005) suggested that the body responds to socially and physically painful events using similar (and in many cases, the same) neural mechanisms. Hence the similarity between descriptions of socially painful events such as social exclusion and physical injury appear to extend beyond mere metaphor.

The possibility of common neural overlap between social and physical pain was first proposed by Panksepp and colleagues in their work on separation distress cries among nonhuman animals (Herman & Panksepp, 1978; Panksepp, Herman, Conner, Bishop, & Scott, 1978; Panksepp, Vilberg, Bean, Coy, & Kastin, 1978). According to Panksepp and colleagues, evolution co-opted mechanisms designed to detect and regulate physical pain to respond to socially painful events, such as social exclusion or rejection. This sort of co-opting is parsimonious and adequate. By definition, having one system respond to both socially and physically painful events is more economical than having dual systems that respond to social and physical pain separately. The more important implication, however, is that having a single system responsible for detecting and regulating different pain responses suggests that social and physical threat may have been encoded in similar ways during human evolutionary history.

As noted above, the need to belong evolved on the basis of humans relying on others for their survival. Hence social exclusion, like severe physical injury, could have entailed death to our evolutionary ancestors. Early civilizations, such as the Greeks, treated exclusion from society and death as equivalent punishments. If evolution instilled in human biology the natural tendency to respond to social exclusion in a similar manner as physical injury, however, then social exclusion may produce physical and emotional responses akin to those found in response to physical injury.

Recent evidence has supported the hypothesis that the pain of social exclusion activates many of the same neural mechanisms associated with physical pain experiences. In a study using functional magnetic resonance imaging (fMRI), participants played a virtual ball-tossing game with two other participants who they believed were also in fMRI scanners (Eisenberger, Lieberman, & Williams, 2003). In reality, the supposed other participants' movements were programmed so that they included the real participant sometimes, whereas other times they excluded the real participant. Results revealed that social exclusion, compared to social inclusion, increased activation in the dorsal anterior cingulate cortex (dACC). The dACC is a region of the brain that functions to warn organisms of

potential predators or other environmental factors that thwart their goals (Bush, Luu, & Posner, 2000; Nelson & Panksepp, 1998). Eisenberger et al. (2003) also demonstrated that social exclusion increased activation in the right ventral prefrontal cortex (rvPFC), which is a brain area that functions to regulate distress associated with physical pain and negative affect.

Additional support for common neural overlap between social and physical pain systems can be found in neuroscience research on the periaqueductal grey (PAG) brain structures. The PAG, like the ACC, is involved both in the detection of physical pain responses and in animal bonding behavior (Craig & Dostrovsky, 1999). Experimental activation of the PAG elicits separation distress cries from rats (Panksepp, 1998). Conversely, lesions to the PAG reduce separation distress cries in nonhuman animals (Wiedenmayer, Goodwin, & Barr, 2000). More relevant to the current chapter are findings that short-term isolation from caregivers and conspecifics cause reductions in sensitivity to physical pain (i.e., analgesia) among a variety of animals (Kehoe & Blass, 1986; Naranjo & Fuentes, 1985; see MacDonald & Leary, 2005, for a review). Threats to belongingness therefore activate neural mechanisms hard-wired for the detection and regulation of physical pain.

DOES SOCIAL EXCLUSION CAUSE PHYSICAL NUMBNESS IN HUMANS?

Prior work testing the link between social and physical pain systems has been confined largely to work with nonhuman animals. To test whether similar links exist among humans, my colleagues and I have begun a program of research with the overarching goal of demonstrating that social exclusion alters the manner in which people experience physical pain, with direct implications for sensitivity to and tolerance for painful stimuli. This research program also aspired to show that insensitivity to physical pain following social exclusion would influence emotional sensitivity.

In one series of experiments, social exclusion was manipulated by having participants complete a personality test, giving participants accurate feedback regarding their extraversion scores, and then giving participants bogus information that they had a personality type in which they could anticipate ending up alone later in life (the Future Alone condition; DeWall & Baumeister, 2006). Three control groups were used. A first group was informed they had a personality type in which they

could expect to have positive and lasting relationships (Future Belonging). A second group was told they scored highly on a scale that indicated they would have many serious physical accidents later in life, resulting in frequent broken bones and hospital stays (Misfortune Control). The Misfortune Control condition is a staple of research using this manipulation because it enables researchers to test whether responses are due to receiving any form of bad news (involved in both the Future Alone and Misfortune Control conditions) or if responses are due to social exclusion (involved in only the Future Alone condition). A third control group received accurate feedback regarding their extraversion score and no additional information (No Feedback Control).

Two experiments provided initial tests of the hypothesis that social exclusion changes how the body responds to physical pain. Participants provided initial measurements of pain threshold and pain tolerance, were exposed to the social exclusion manipulation, and then completed additional measurements of pain threshold and pain tolerance. A pressure algometer was used to measure all physical pain responses. Pain threshold was measured by having participants say “now” as soon as they experienced physical pain in relation to pressure being exerted onto their skin. Pain tolerance was measured by having participants say “stop” as soon as they felt they could no longer tolerate the physical pain. There were two benefits of having participants provide measures of both pain threshold and pain tolerance before and after exposure to the social exclusion feedback. First, we were able to control for individual differences in pain threshold and pain tolerance. Second, we were able to test whether social exclusion produced absolute changes in pain threshold and pain tolerance (i.e., increases in threshold and tolerance among excluded participants but not participants in the control groups) in addition to testing whether socially excluded participants showed differences relative to participants in the control groups.

The results from these studies supported the hypothesis that social exclusion alters the manner in which the body responds to physical pain. Future Alone participants showed higher pain threshold (indicating lower pain sensitivity) and increased pain tolerance (indicating a greater capacity for enduring pain) than did Future Belonging, Misfortune Control, and No Feedback Control participants. These findings were strengthened further by results indicating that the difference between baseline and postfeedback pain threshold and pain tolerance among Future Alone participants was greater than zero, whereas there were no reliable changes from baseline to postfeedback among Future Belonging,

Misfortune Control, and No Feedback Control participants. Thus, the decrease in pain sensitivity and increase in pain tolerance among Future Alone participants was an absolute change from baseline levels as opposed to merely a relative difference compared to participants in the control groups.

HOW DOES PHYSICAL NUMBNESS RELATE TO EMOTIONAL NUMBNESS FOLLOWING SOCIAL EXCLUSION?

Having obtained evidence that social exclusion produced analgesic effects among humans, DeWall and Baumeister (2006) set forth to determine whether physical insensitivity following social exclusion would have implications for emotional responding. If social exclusion disrupts the capacity for people to respond to physical pain in a normal fashion, then it is possible that this physical insensitivity might relate to the previously reported tendency for excluded people to report relatively numb emotional states (e.g., Twenge et al., 2003). Social desirability concerns may bias responses from self-report measures of emotion. Therefore, we measured emotional responding using measures that were less vulnerable to social desirability bias, namely affective forecasting and empathic concern.

Predicting No Pain

Affective forecasting refers to predicting the valence, intensity, and duration of an emotional response to a possible future event (Wilson & Gilbert, 2003). People tend to overestimate the intensity and duration of their future emotional reactions, though they appear quite accurate in predicting the valence of their emotional reaction. For example, untenured college professors predict that being denied tenure at their institution will cause them to experience an emotional response that is more negatively valenced, intense, and long-lasting than is actually the case (see Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). More relevant to the current chapter, however, is the finding that a person's current emotional state can influence the type of affective forecasts a person makes (Gilbert, Gill, & Wilson, 2002). If social exclusion renders the emotion system temporarily incapacitated, then excluded people will be relatively incapable of responding to their own emotions. As a result,

excluded people will predict less emotionally sensitive responses to possible future events compared to nonexcluded people.

To test this hypothesis, we exposed participants to the same social exclusion manipulation used in the first two studies (DeWall & Baumeister, 2006). Participants first completed baseline measures of their pain threshold and pain tolerance. Next, participants completed a personality test, received accurate feedback on their extraversion score, and received bogus feedback that they would either end up alone later in life (Future Alone) or have positive and lasting relationships with others (Future Belonging). A third group (No Feedback Control) did not receive any personality feedback other than their extraversion score. After receiving their personality feedback, participants predicted their emotional response to a pair of possible future events. Specifically, participants rated the degree to which they would feel happy if the football team from their school (i.e., Florida State University) was victorious or defeated by a rival opponent (i.e., University of Florida). Finally, participants completed additional measures of pain threshold and pain tolerance.

The design of the study thus enabled us to test whether social exclusion led to both physical (higher pain threshold and pain tolerance) and emotional (affective forecasts of relative emotional numbness) insensitivity. Moreover, such a design would provide the opportunity to test whether physical and emotional insensitivity experienced in the wake of social exclusion would relate to each other. If social and emotional insensitivity were related, then the study would provide convincing evidence of the proposed common neural overlap between social and physical pain systems (e.g., MacDonald & Leary, 2005).

The results from this study showed that social exclusion caused both physical insensitivity and emotional insensitivity. As in the previous pair of studies, socially excluded participants demonstrated higher pain threshold and pain tolerance compared to socially accepted and control participants. Excluded participants also showed absolute increases in pain threshold and pain tolerance, suggesting that the observed analgesia was due to the social exclusion feedback and not merely a relative difference compared to nonexcluded participants. More important, however, was the finding that socially excluded participants predicted less extreme emotional reactions to possible future events than did socially accepted and control participants. As in prior affective forecasting studies, socially accepted and control participants anticipated extremely high levels of happiness (mean of 6.65 on a 7-point scale) in response to

their team winning a game against a rival opponent. In contrast, socially excluded participants predicted levels of happiness in response to their own team's victory that hovered around the mid-point of the scale (mean of 4.70). The physical insensitivity among excluded participants was also significantly related to their emotional insensitivity, which supported the hypothesis of common neural overlap between social and physical pain systems.

Not Feeling Another Person's Pain

If social exclusion causes the emotion system to cease functioning normally, then excluded people might have difficulty expressing strong emotional responses toward others who are distressed. Prior work showed that social exclusion reduces prosocial behavior (e.g., Twenge et al., 2007). In addition, Batson and colleagues have argued that empathic concern enhances prosocial behavior (see Batson, 1991, for a review). Exclusion may therefore reduce the amount of empathic concern people express toward others who are in distress, which may relate to the previously documented physical insensitivity in response to social exclusion.

Our lab explored this possibility in another study using a design that was similar to the previous one, except that participants were given an opportunity to empathize with another person's suffering as opposed to having participants predict their emotional responses to possible future events. Participants first gave baseline measures of pain threshold and pain tolerance, after which they completed a personality test and received the social exclusion (Future Alone), social acceptance (Future Belonging), or neutral (No Feedback Control) feedback. Following procedures used in Batson, Klein, Highberger, and Shaw (1995), participants were then given the opportunity to empathize with another person in distress. For this, the experimenter informed participants that they would read and respond to an essay that was written by another participant who was participating in an unrelated experiment down the hall. The handwritten essay, which was actually prepared by the researchers before the participant arrived at the laboratory, described the events leading up to the author of the essay being dumped by his or her opposite-sex romantic relationship partner. To facilitate understanding, the handwriting of the essay (male or female) matched each participant's gender.

Participants reported how much sympathy, compassion, soft-heartedness, and tenderness they felt toward the author of the essay.

Responses were summed to create an empathic concern index. After reporting their empathic concern toward the suffering student, participants completed additional pain threshold and pain tolerance measurements.

The results from this study confirmed that social exclusion impairs the emotion system, with implications for both physical and emotional insensitivity. Socially excluded participants again showed substantially higher pain threshold and tolerance than did socially accepted and control participants. Excluded participants also expressed lower levels of empathic concern toward the suffering student compared to non-excluded participants. One excluded participant even uttered “tough shit” upon reading the essay describing another student’s romantic break-up, which illustrates a relatively callous and unemotional manner of responding to another person’s suffering. As in the previous experiment, the physical and emotional responses were intercorrelated. The high degree of similarity between physical and emotional responses to social exclusion provides further evidence of common neural overlap in how the body responds to socially and physically painful events.

CAN EMOTIONAL INSENSITIVITY HELP TO EXPLAIN THE BEHAVIORAL CONSEQUENCES OF SOCIAL EXCLUSION?

The data reviewed thus far paint a picture of the excluded person as somewhat antisocial and emotionally dysfunctional. Initial predictions of emotional distress as a mediator of the relationship between social exclusion and behavioral outcomes have failed repeatedly. Instead, the body responds to social exclusion with widespread physical and emotional numbness—a type of response that resembles coping with severe physical injury. Just as nonhuman animals experience analgesia when they are excluded from caregivers or conspecifics (e.g., Naranjo & Fuentes, 1985), humans become relatively numb physically and emotionally when confronted with a forecast of future social exclusion. If emotional distress consistently fails to mediate the behavioral effects of social exclusion, then might emotional *insensitivity* offer a plausible solution as to what inner mechanisms underlie the behavioral effects of exclusion? This section will review recent evidence investigating the role of emotional insensitivity in explaining the effects of social exclusion on pro-social and aggressive behavior.

WHY DOES SOCIAL EXCLUSION REDUCE PROSOCIAL BEHAVIOR?

People choose to obey or rebel against standards for appropriate behavior on the basis of their belief that they belong to a group in which cooperation is supported and selfishness is admonished (Baumeister et al., 2005; DeWall, Baumeister, et al., 2008). From this perspective, people behave prosocially in part because doing so will earn them the benefits that follow from acceptance into a group. Social exclusion may signal that the rewards that frequently accompany prosocial behavior will be less forthcoming and hence not worth the effort. Indeed, correlational studies have shown that children who are rejected or excluded behave in a less prosocial manner (e.g., Asher & Coie, 1990; Coie & Dodge, 1988). In contrast, experiencing social acceptance is highly correlated with behaving prosocially (e.g., Bukowski & Newcomb, 1984; Hartup, Glazer, & Charlesworth, 1967). Social exclusion therefore might decrease people's motivation to behave prosocially.

The results from DeWall and Baumeister (2006) suggest, however, that social exclusion might also reduce the capacity for people to experience emotional responses that increase the likelihood of people behaving prosocially. Excluded people, compared to nonexcluded people, expressed less empathic concern toward another person who was in distress. Empathy is among the strongest predictors of helping behavior (Batson, 1991), as it involves experiencing emotions that facilitate understanding another person's situation. If the emotion system enables people to understand others, then the emotional numbness that accompanies exclusion may disrupt the capacity for excluded people to empathize with others' distress. With a reduced ability to empathize with others, excluded people may in turn behave less prosocially compared to nonexcluded people.

To test this possibility, Twenge et al. (2007) conducted a study in which participants received either the Future Alone, Future Belonging, or Misfortune Control feedback, had their empathic concern toward a suffering person measured, and finally were given an opportunity to behave prosocially. Empathic concern was measured in the same way as in the DeWall and Baumeister (2006) experiment reviewed above, namely by having participants report how much sympathy, compassion, soft-heartedness, and tenderness they felt toward another student who had experienced a recent romantic rejection (responses were again summed to create an empathy index).

After reporting their empathic concern toward the suffering student, participants were given eight quarters (\$2 US) as payment for their participation. The experimenter explained that quarters, as opposed to folding money, were used as payment because part of the study involved a random set of participants being paid at different intervals throughout the experiment. Participants were then informed they would be able to donate some of their money to a charitable (and, unbeknownst to participants, fictitious) organization, the “Student Emergency Fund,” whose mission was to provide students with financial support when confronted with unanticipated expenses. To give participants privacy, the experimenter left the room for a couple of minutes to give the participant an opportunity to donate (or not) without feeling pressured to behave prosocially out of a desire to please the experimenter. The total number of quarters participants donated served as the measure of prosocial behavior.

The results from this study demonstrated that socially excluded participants behaved less prosocially than did socially accepted and control participants. Whereas accepted and control participants donated an average of 74% of the money they were paid (i.e., \$1.48), socially excluded participants donated approximately 27% of their earnings (i.e., \$0.53). Compared to nonexcluded participants, socially excluded participants also reported less empathic concern toward the suffering student. This drop in empathic concern mediated the relationship between social exclusion and reduced prosocial behavior.

These findings offer initial evidence that emotion can play a significant role in understanding the behavioral effects of social exclusion—but not in the way social exclusion researchers originally hypothesized. Rather than emotional distress mediating the behavioral effects of social exclusion, social exclusion saps the capacity for the emotion system to function properly, leading excluded people to behave selfishly as opposed to behaving prosocially.

MIGHT EMOTIONAL INSENSITIVITY HELP TO EXPLAIN THE SOCIAL EXCLUSION-AGGRESSION LINK?

Most classic social psychological theories of aggression assert that heightened emotional responding promotes aggression (Anderson & Bushman, 2002; Berkowitz, 1982; Dollard, Doob, Miller, Mowrer, & Sears, 1939; Zillman, 1983). These theories are founded on the assumption that

the aggressive perpetrator can experience strong emotional responses. Hence these theories are not well-equipped to explain aggression among people who have recently experienced social exclusion and therefore have an emotion system that is not functioning normally.

Whereas the social psychological literature has focused primarily on how high levels of emotional responding might promote aggressive behavior, neuroscientists have stressed the importance of emotional insensitivity as a predictor of irrational and self-defeating decision-making. Damasio, Bechara, and their colleagues, for example, have examined how people with lesions to core centers of emotion make decisions compared to people who do not have such lesions (Bechara, Damasio, Damasio, & Lee, 1999; Damasio, 1994). If strong emotional responses promote irrational behavior (e.g., Greeno, Shiffman, & Wing, 1989; Tice, Baumeister, & Bratslavsky, 2001; Wegener & Petty, 1994), then patients with no capacity to experience strong emotions (because brain matter in those neural regions has been removed) should exhibit rational, effective decision-making compared to people who are vulnerable to having their emotions influence the decisions they make. Arguing against that line of reasoning, however, are findings that people with lesions to the ventromedial prefrontal cortex (vmPFC) appear unable to make rational decisions and to learn from their mistakes (Damasio, 1994).

Clinical psychologists have focused on the role of emotional insensitivity as a predictor of suboptimal responding, namely aggressive behavior. People who have deficits in emotional reactivity tend to engage in more frequent and severe acts of violence compared to people who have normally functioning emotion systems (Hare, 1999). Indeed, traits associated with a chronic inability to experience strong emotional responses are traditionally referred to as “primary” or “Factor I” features of psychopathy (Blair, 2001). People scoring high on Factor I psychopathic personality traits have lower resting levels of emotional responsiveness (e.g., heart rate, skin conductance, and cortisol levels) and decreased physiological responses to experimental stressors compared to people who score relatively low on Factor I traits (e.g., eye blink startle response, skin conductance reactance, heart rate, cortisol levels, activation in the limbic-prefrontal circuit; Benning, Patrick, & Iacono, 2005; Birbaumer et al., 2005; Flor, Birbaumer, Hermann, Ziegler, & Patrick, 2002; O’Leary, Loney, & Eckel, 2007). Aggressive impulses are usually inhibited through strong empathic responses toward the person who will suffer pain and trauma from the aggressive response (Blair, 1995). Without a normally functioning emotion system, psychopathic individuals are

unable to empathize with the victim and therefore are less able to inhibit their aggressive impulses.

The implication from these literatures is that emotional insensitivity can promote irrational and aggressive behavior. More important, however, is the similarity in responding between socially excluded people and people who are psychopathic or who have lesions to the ventromedial prefrontal cortex. Just as socially excluded people exhibit emotional insensitivity, irrational decision making, and aggressiveness, people who lack the capacity to experience strong emotional responses make sub-optimal decisions and behave aggressively. It is therefore possible that the emotional insensitivity that accompanies social exclusion may help to explain why excluded people tend to behave aggressively. DeWall (2007) tested this possibility in a pair of recent studies.

Participants in both studies arrived at the laboratory for an experiment ostensibly investigating interpersonal interactions. The experimenter informed participants that they would receive and send messages from a same-sex partner before having an interaction with the partner. In reality, the messages from the “partner” were prepared by the experimenter before the participant arrived at the lab. Participants were told the reason for the initial separation between them and the partner was that such separation would allow the researchers in charge of the study to investigate how limitations on initial encounters influence later face-to-face interactions.

After receiving and exchanging information with the partner, the experimenter returned and delivered the social exclusion manipulation. Half of the participants were told that the partner had to leave unexpectedly and therefore there would not be an interaction (Irrelevant Departure condition). The rest of the participants, in contrast, were informed that the partner refused to interact with them (Personal Rejection condition). Participants in both conditions did not expect this feedback. Thus, all participants experienced some form of unanticipated social exclusion—but only participants in the personal rejection condition were excluded because of something negative about themselves.

Participants were then presented with an opportunity to express empathic concern toward another student who was not involved in the rejection experience. The experimenter informed participants that they would read and respond to an essay written by another student who was making up a credit for a missed experiment. The content of the essay was the same as that used in the previously reviewed studies, namely a student describing the recent dissolution of his or her romantic relationship. Participants then reported how much empathic concern they felt

for the suffering student. After reporting their level of empathic concern, participants in both studies completed a task in which they could behave aggressively toward the suffering student.

In the first study, participants were instructed that they would complete a competitive reaction-time task by computer with the author of the essay. In the game, the loser of each trial was forced to listen to a blast of white noise through a set of headphones. Participants were informed that they would be given the opportunity to set the intensity level and duration of the blast of white noise to which the author of the essay would be forced to listen if the author lost the trial. This method of measuring aggression has been used in numerous investigations (e.g., Bartholow, Bushman, & Sestir, 2006) and has good construct validity (Giancola & Zeichner, 1995). The intensity and duration levels were standardized and summed to create a composite measure of aggression (see Bushman & Baumeister, 1998, for similar scoring procedures).

The second study involved participants reading the essay used to invoke empathy and later providing an evaluation of the author of the essay that would be used to determine whether or not the author would obtain a competitive research assistantship. By providing a damaging job candidate evaluation, participants would thwart the opportunity for the author to fulfill their goal of obtaining a desirable employment opportunity. Aggression is defined as any action meant to harm another person who is motivated to avoid the action (Anderson & Bushman, 2002, p. 28). Hence thwarting another person's chances of getting a job satisfies Anderson and Bushman's definition of aggression.

Results from both studies supported the prediction that reduced empathic concern plays a significant role in predicting aggression responses following rejection. Replicating prior work, personally rejected participants expressed less empathic concern and behaved more aggressively toward the suffering student than did participants who were excluded for nonpersonal reasons. In addition, the link between personal rejection and aggression was mediated by reduced empathic concern toward the victim of the aggressive action.

These findings suggest that a reduced ability to express empathy toward others can have implications for how aggressively people behave in the wake of social exclusion. Although strong emotional responses can increase aggression (e.g., Anderson & Bushman, 2002; Berkowitz, 1982), strong emotional responses consistently fail to mediate the behavioral effects of social exclusion. These results provide

some evidence that researchers may benefit from considering emotional insensitivity as a mechanism underlying aggressive responses to social exclusion.

CAN ANALGESICS REDUCE SOCIALLY PAINFUL FEELINGS?

The evidence reviewed in this chapter provides consistent support for the hypothesis that the body responds to social exclusion in a manner that is similar to how it responds to physical pain. When people experience extreme threats to belonging, the emotion system ceases functioning normally, which in turn reduces sensitivity to physical and emotional pain. What these studies did not investigate, however, was whether interventions aimed at reducing physical pain may have implications for responses linked to social pain. If emotional pain is processed via physical pain mechanisms, then medication designed to reduce pain sensitivity may attenuate emotional pain that is related to social exclusion. DeWall, MacDonald, et al. (2008) conducted an experimental, experience-sampling study to test this hypothesis.

Participants in the DeWall, MacDonald, et al. (2008) experiment were assigned randomly to an analgesic condition or a placebo condition. For 3 weeks, participants in the analgesic condition ingested pills filled with acetaminophen, whereas participants in the placebo condition ingested pills filled with cornstarch. At the end of each day, participants reported how much their feelings had been hurt that day. Hurt feelings are the core emotional component of social exclusion (Leary, Springer, Negel, Ansell, & Evans, 1998). Therefore, participants taking acetaminophen should experience less hurt feelings over time compared to participants taking placebo.

The results confirmed that acetaminophen reduced psychological hurt feelings over time. After only two weeks, participants who ingested acetaminophen reported lower hurt feelings compared to participants in the placebo condition. This difference in daily hurt feelings grew stronger every day until the end of the study. Although the daily dose of acetaminophen used in the study was only one-fourth the maximum daily dose, the estimated size of effect of acetaminophen on hurt feelings met criteria used to describe medium-to-large effect sizes (Cohen, 1977). These effects strongly confirm the link between the body's response to social and physical pain.

IMPLICATIONS FOR BULLYING AND VICTIMIZATION RESEARCH

The current findings suggest that bullying and victimization are painful events. Just as prolonged physical pain can disrupt healthy functioning, so too can experiencing chronic social pain hamper well-being. As a result, researchers must begin to design interventions aimed at reducing the negative effects of bullying and victimization.

A simple intervention would draw on the strong desire for affiliation that follows from social rejection (e.g., DeWall, Maner, & Rouby, *in press*; Maner, DeWall, Baumeister, & Schaller, 2007). When students feel bullied or rejected, they can be instructed to bring to mind the time in their life when they felt most accepted. By focusing on how they had experienced social acceptance in their life, the sting of the rejection they just experienced would likely be attenuated.

Another possibility is to train students to consider their experience being bullied at a high level of meaning, namely by thinking of how small of a part of their entire life their experience being bullied really took up. There is some empirical support that this sort of intervention may prove effective in reducing the self-regulation deficits that have been documented in the wake of social rejection. Fujita, Trope, Liberman, and Levin-Sagi (2006), for example, showed that having people write about events at a high level of meaning performed better on self-regulation tasks compared to participants who were not instructed to think of the same events at a high level of meaning. By considering their rejection or bullying experience at a high level of meaning, people may be buffered from the negative effects of social rejection on self-regulation.

A third possible intervention would involve having students with a history of bullying and victimization complete activities that involve increasing their sense of mindfulness. Mindfulness refers to intentionally attending to current experiences in a nonjudgmental and accepting manner (Kabat-Zinn, 1990). Mindfulness practices have a long history in a variety of world religions and were originally intended to reduce suffering and to improve awareness, insight, and compassion for others. There is some recent evidence that mindfulness activities can reduce behavioral aggression following social rejection (Heppner et al., 2008). These findings suggest that mindfulness-based activities may reduce the likelihood that bullied or victimized people will lash out at others with aggression.

CONCLUDING REMARKS

Social interactions can be painful. People may feel snubbed at work, excluded by friends, or ignored by their romantic partner. The evidence reviewed in this chapter suggests that the body responds to these socially painful events in a manner that is similar to physical pain. When people are confronted with a serious threat to their need to belong, the emotion system ceases functioning normally and thereby reduces excluded people's sensitivity to physical and emotional pain. The common neural overlap between social and physical pain systems helps to explain the effects of social exclusion and prosocial and aggressive behavior. Without a normally functioning emotion system, excluded people are incapable of understanding and showing empathic concern toward others. As a result, excluded people behave less prosocially and more aggressively compared to people whose emotion systems were left intact. Giving people a low dose of a common over-the-counter painkiller appears to reduce the psychological hurt people experience in their daily lives.

The reviewed findings underscore the importance of providing people with opportunities that foster their sense of interpersonal belonging. Most people are motivated to shield their loved ones from physical injury, but the same motivation is less often applied to protecting loved ones from the pain of social exclusion. By understanding the similarity in how the body responds to social and physical pain, norms that admonish the use of social exclusion, ostracism, and bullying may be strengthened and, as a result, the negative consequences of these socially painful events can be reduced.

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10

Looking Before Leaping: The Role of Social Expectancies in Attachment Regulation Following Interpersonal Rejection

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Theoretical and empirical work on interpersonal rejection has burgeoned in the past decade, resulting in the publication of several volumes and reviews aimed at documenting the varied and seemingly contradictory ways in which both children and adults respond to being rejected (Abrams, Hogg, & Marques, 2005; Bierman, 2004; Leary, 2001; Williams, 2007; Williams, Forgas, & von Hippel, 2005). While empirical findings have accumulated at a rapid rate, relatively fewer attempts have been made to synthesize these findings within a larger motivational framework. Studies with children have tended to focus on the cognitive and/or behavioral consequences of peer rejection, victimization, and aggression (e.g., Crick & Dodge, 1996; Crick, Grotpeter, & Bigbee, 2002; Crick & Werner, 1998; Dodge et al., 2003; Kochenderfer-Ladd, 2004; Phillips Kean, Brown, & Meade Crenshaw, 1990; Werner & Crick, 2004) while giving relatively less attention to the goals that these cognitions and behaviors might serve. Studies with adults have employed a diverse array of laboratory manipulations and measures, making comparisons across studies difficult and raising questions as to whether outcomes associated with one type of rejection necessarily generalize to other forms of rejection (Leary, 2005). Further confusing matters is the fact that some consequences of rejection, including increased aggression (Buckley, Winkler, & Leary, 2004; Dodge et al., 2003; Phillips Keane et al., 1990;

Twenge, Baumeister, Tice, & Stucke, 2001; Werner & Crick, 2004) and the withdrawal of helping (Buckley et al., 2004; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), contradict both intuitive and scientific reasoning about how someone *should* respond to rejection if social acceptance is both desirable and essential to health and well-being (Baumeister & Leary, 1995; Baumeister & Tice, 1990; House, Landis, Umberson, 1988; Lynch, 1979).

Our own reading of the literature has led us to conclude that much of the theoretical groundwork for understanding the myriad responses to rejection has already been laid out by scholars working within the attachment tradition (Fraley & Shaver, 2000; Hazan & Shaver, 1994; Mikulincer & Shaver, 2003, 2004; Pietromonaco & Feldman-Barrett, 2000; Shaver & Mikulincer, 2002). Thus, the present chapter attempts to synthesize what psychologists know about rejection using principles borrowed from attachment theory, and in particular the models of attachment regulation proposed by Mikulincer and Shaver (Shaver & Mikulincer, 2002; Mikulincer & Shaver, 2003, 2004) and Murray and colleagues (Murray, Derrick, Leder, & Holmes, 2008; Murray, Holmes, & Collins, 2006). Though these frameworks were advanced to explain and predict attachment behavior within close (romantic) relationships, they show clear promise for lending coherence and predictability to responses to peer rejection as well.

The current chapter focuses primarily on research conducted in social psychology, which relies heavily on young college students as participants. Experimental manipulations in this field typically take the form of false feedback suggesting that other students or people in general have little (or much) interest in forming a relationship with the participant. For ethical and practical reasons, the developmental peer rejection literature has instead tended to rely heavily on peer nominations and hypothetical scenarios as proxies for rejection. While a considerable amount of valuable information has been amassed using these operationalizations (e.g., Phillips Keane et al., 1990; Rabiner, Lenhart, & Lochman, 1990; Sandstrom, Cillessen, & Eisenhower, 2003), we feel that experimental studies that employ false feedback are crucial to understanding the causal mechanisms at play following real-life instances of rejection. Note also that we define peer rejection broadly to refer to any instance of perceived rejection, ostracism, or exclusion by others of similar age and cohort. This allows us to include within the definition both college students and children, the latter of whom historically have been the focus of work on this topic.

We begin the chapter by outlining the basic assumptions of attachment theory and models of attachment regulation, supported with representative research findings. We then describe how central features of these frameworks can be borrowed and applied to understanding normative responses to interpersonal rejection outside the context of romantic or familial relationships. We conclude with a discussion of important questions for future research and the types of studies that are needed to garner support for an attachment regulation perspective on peer rejection.

ATTACHMENT THEORY AND WORKING MODELS

A detailed review of attachment theory is well beyond the scope of this chapter. We refer readers to several excellent reviews and edited volumes for an elaborate discussion of work in this area (Adult attachment, Special issue, 2000; Cassidy, & Shaver, 1999; Collins & Read, 1994; Mikulincer & Shaver, 2007; Pietromonaco & Feldman-Barrett, 2000; Rholes & Simpson, 2004; Simpson & Rholes, 1998). Below we describe only the major tenets of attachment theory and the findings most pertinent to our theorizing regarding responses to interpersonal rejection.

Bowlby (1969, 1973, 1982) proposed that the attachment system evolved as a means of ensuring survival in infants and children, who are dependent on close proximity to caregivers for maintaining physical security. He suggested that threats to “felt security” initially activate efforts to regain security through proximity-seeking behaviors and attempts to elicit the attention of caregivers. Repeated, unsuccessful attempts at connection result in a secondary state of despair and sadness. In the final state, the child detaches emotionally from the caregiver and uses self-reliance as a defensive means of suppressing separation anxiety and alleviating distress.

The attachment theory literature has been dominated by work on individual differences in attachment style (e.g., Ainsworth, 1989; Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). The majority of studies have adopted a two-dimensional framework that crosses working models of self (as deserving of love and acceptance) and others (as capable and/or motivated to provide love and acceptance) to create four attachment styles: secure (positive self, positive other), preoccupied (negative self, positive other), dismissive avoidant (positive self, negative other), and fearful avoidant (negative self, negative other).

These attachment styles have also been framed within two-dimensional frameworks of anxiety and avoidance (Brennan, Clark, & Shaver, 1998; Pietromonaco & Feldman Barrett, 2000) and emotional reactivity and reliance on others to regulate affect (Pietromonaco & Feldman Barrett, 2000). Thus, *secures* and *dismissive-avoidants* share in common low levels of anxiety and reactivity, but *dismissive-avoidants* deny the importance of close relationships and rely on the self rather than others to achieve felt security. *Preoccupieds* and *fearful-avoidants* share high levels of anxiety and reactivity, but *fearful-avoidants* oscillate between anxiously approaching their partners and fearfully avoiding them.

In an elegant synthesis of the literature on normative and individual-difference responses to attachment threat, Shaver and Mikulincer (2002; Mikulincer & Shaver, 2003) outlined the sequence of events that play out when people experience a threat to the attachment system. They argue that attachment or nonattachment related threats (such as threat to self-esteem) activate the attachment system for all people, regardless of individual differences in attachment style. This leads them to search for physical or mental representations of attachment figures and seek proximity to these figures. An appraisal process then occurs, which then determines whether threatened individuals rely on attachment figures for comfort and support. Appraisals of attachment figures as available encourage further proximity seeking, reliance on others to alleviate distress, and “broaden and build” behaviors (Fredrickson, 2001) that include risk-taking, caregiving, integrative and creative thinking, and replenishment of inner resources (Shaver & Mikulincer, 2002). Appraisals of others as unavailable or unlikely to be responsive result in an exacerbation of distress, which in turn predicts the use of secondary attachment strategies of hyperactivation (continuous monitoring of threat, low threshold for rejection, and anxious, controlling attempts to elicit support) and deactivation (repression of negative affect, loss of empathy, avoidance of closeness, and increased self-reliance) (Main, 1990; Shaver & Mikulincer, 2002). Hyperactivating strategies are characteristic of people with a preoccupied attachment style, whereas deactivation strategies are characteristic of people with fearful- and dismissive-avoidant attachment styles. Dismissive avoidants are better at suppressing thoughts of attachment figures than are fearful avoidants, who remain fearful of rejection and cycle between approach and avoidance.

Despite the vast amount of information gleaned from work on attachment styles, this approach to understanding the inner workings of the attachment system has come under criticism from several prominent

scholars in the field. Critics argue that the overreliance on individual difference measures has discouraged researchers from examining contextual or situational influences on attachment behavior (Kobak, 1994; Pietromonaco & Feldman-Barrett, 2002). Further compromising the predictive use of attachment styles as determinants of behavior is the fact that global working models of self and others show weak correlations with relationship-specific working models (i.e., models related to specific romantic partners, family members, and friends) (Cozzarelli, Hoekstra, & Bylsma, 2000; Pierce & Lydon, 2001), and that a single, formative experience with an attachment figure can significantly alter attachment trajectories (Hazan & Shaver, 1994; Pietromonaco & Feldman-Barrett, 2002). This suggests that a great deal of information about attachment regulation processes can be gleaned from examining relationship-specific instances of threat.

RISK REGULATION MODEL

Murray and colleagues (Murray, Holmes, & Collins, 2006) recently proposed a risk regulation model that describes how people regulate dependency within close relationships. They argue that confidence in a partner's regard determines the priority given to *relationship-promotive* versus *self-protection* goals. Perceptions of one's partner as accepting reduces perceived vulnerability to hurt—allowing one to put aside self-protection goals in the service of risky behaviors that offer the potential for increased closeness. Perceptions of one's partner as rejecting or unavailable increase the potential for hurt and activate self-protective efforts to limit dependency on the partner. Support for this framework comes from studies showing that people high in self-esteem, who perceive higher levels of acceptance in general (Leary, Tambor, Terdal, & Downs, 1995), tend to react to interpersonal slights or nonsocial threats by drawing closer to their partners and affirming the value of their relationships (Murray, Holmes, Griffin, 2000; Murray, Rose, Bellavia, Holmes, & Kusche, 2002). Those low in self-esteem, conversely, respond to these threats by derogating their partners and denying the importance of their relationships (Murray et al., 2000, 2002).

In an elaboration and extension of this framework, Murray et al. (2008) proposed a temporal model of attachment regulation that shares central features of the model proposed by Mikulincer and Shaver (2003; Shaver & Mikulincer, 2002). Specifically, they propose that desires for

connectedness and self-protection are activated automatically in response to threat. Both goals emerge simultaneously when the source of threat is also the target of potential connection. When threat originates outside of the close relationship (for example, if one fails at a task or experiences rejection by an acquaintance), self-protection goals are activated indirectly through connection goals. That is, threatened individuals initially seek out their partners for comfort and support, which in turn arouses concerns about being hurt. The conflict between pursuing a sense of assurance from the partner and avoiding additional rejection is then resolved through a relatively controlled process that includes appraising the likely responsiveness of one's partner. Because conscious appraisals of another's availability require executive functioning, this stage can be undermined by tasks that deplete attentional or regulatory resources. Murray et al. (2008) reported several experiments that provide good support for this model.

The impressive collection of early studies conducted by Murray and colleagues (2000, 2002; Murray, Holmes, MacDonald, & Ellsworth, 1998) drew heavily on attachment theory for understanding individual differences in how people respond to threat within romantic relationships. As such, their model of risk regulation incorporates many of the concepts outlined by Mikulincer and Shaver as well as other attachment theorists. One salient difference between the risk regulation model and predictions derived from attachment theory pertains to the origin of partner expectancies. Specifically, Murray et al. (2006) suggest that low confidence in a partner's ongoing regard can result from working models of the self as unlovable and unworthy of positive regard (or high levels of anxiety), or models of others as unwilling to provide love and support (or high levels of avoidance). Thus, in their framework, anyone classified as insecure on traditional attachment measures will seek to minimize dependency on close relationship partners. In another key difference, the model proposed by Mikulincer and Shaver places self-protection in a stage following appraisal of the attachment figure as likely to be available or responsive, whereas Murray and colleagues suggest that self-protection motives arise relatively early in the dependency regulation process, either as a direct consequence of threat (i.e., when the target of connection is also the source of threat) or an indirect consequence of connectedness goals (i.e., when the target of connection is different than the source of threat). Both models suggest that initial responses to threat are quick and automatic and that relatively controlled responses derive from appraisals of others' availability to serve

as sources of connection. We feel this automatic-controlled dimension of dependency regulation is integral to making sense of the varied and seemingly contradictory responses to peer rejection as well. We return to this issue later.

RESPONSES TO PEER REJECTION

In line with the attachment regulation processes described above, we suggest that rejection by peers and acquaintances threatens a general sense of belongingness (Baumeister & Leary, 1995), activating goals for both connectedness and self-protection. Fears of additional rejection compete with needs for connection, however, directing individuals' attention to features of the situation or interaction partner that provide crucial information as to whether efforts to replenish a sense of acceptance will be successful. When the likelihood of rejection is perceived to be high, self-protection goals will dominate, resulting in a constellation of *deactivation* strategies that include the distancing of threat and attachment contexts, devaluation of relationships, suppression of anxiety and other negative emotions, and the quest for independence and self-reliance. When the risk of rejection is perceived to be low (or the potential for acceptance high), people will rely on others as sources of renewed connection and alleviation of distress. This includes efforts to affiliate with others, a willingness to trust in others' good will, and a tendency to see the best (rather than worst) in others.

A clear marker of whether someone is likely to be viewed as a potential source of connection is the extent to which this target has been rejecting in the past. Thus, self-protection goals should generally dominate when the target of possible affiliation is also the source of rejection. Self-protection motives might also prevail when the target is perceived as representative of a group to which the rejecting person belongs or is in some way connected to the rejecting person. By comparison, novel potential relationship partners or those who bear little similarity to one's rejector might be approached as potential relationship partners, especially to the extent that other features of the situation point to a high likelihood of acceptance.

Finally, consistent with attachment regulation processes in close relationships, target-specific social expectancies should guide conscious but not unconscious forms of proximity seeking (e.g., Shaver & Mikulincer, 2002). This allows for the possibility that rejected individuals will

seek proximity to others on a nonconscious, implicit level but seek to distance themselves from others on a conscious level (Murray et al., 2008). The combination of implicit proximity seeking with explicit devaluation of others (with the latter as driven by negative social expectancies) would help to elucidate apparent inconsistencies in the literature between prosocial versus antisocial responses to rejection (Williams, 2007).

Automatic Activation of the Attachment System

If rejection activates the attachment system and the quest for connectedness, then one should see evidence of heightened attention to previous or future potential attachment figures, as well as an increase in proximity seeking behaviors. Further, these processes should occur swiftly and automatically, bypassing conscious control and unaffected by individual differences in (self-reported) self-esteem and related constructs.

In line with this reasoning, Gardner, Pickett, and Brewer (2000) led participants in 2 experiments to feel excluded or included by dyads or groups in a simulated computer chat room. Participants then read a diary purportedly written by another person and were later surprised with a recall task. Findings revealed that excluded (compared to included) participants later recalled a higher proportion of social (relative to individual or neutral) events reported in another person's diary. Exceptional memory for social events among the excluded did not vary according to the type of rejection or valence of the diary information, revealing that rejected individuals exhibited heightened attention to both positive and negative social information.

Pickett, Gardner, and Knowles (2004) found positive associations between individual differences in the "need to belong" and several measures of interpersonal sensitivity. Specifically, individuals scoring high on the need to belong (characterized by chronic concerns for social acceptance; Leary, Kelly, Cottrell, & Schreindorfer, 2007) were better able than those scoring low on this measure to identify emotional expressions in others' faces, were more accurate in detecting vocal tones, and exhibited greater empathic accuracy (i.e., identifying the thoughts and feelings of a person depicted in a video). Need to belong scores did not predict better performance on nonsocial tasks. Perhaps of greater interest was the finding that individuals who relived a rejection episode compared to those who relived a negative or neutral event attended more to vocal tone on a vocal Stroop task but performed worse on the empathic accuracy task. The authors suggested that failure to achieve a desired sense

of belongingness might lead individuals to attend more to social cues, yet practice is needed to decode the meaning of cues. Reductions in empathic accuracy might also be a byproduct of self-protective mechanisms for blunting the experience of emotion following rejection (DeWall & Baumeister, 2006; Twenge, Catanese, & Baumeister, 2003).

Evidence for automatic proximity seeking following rejection was recently provided by Lakin, Chartrand, and Arkin (in press). In their first study, they found that participants who were ostracized during an Internet game were more likely than those who were included to mimic novel interaction partners' foot movements. A second study using only female participants revealed that nonconscious mimicry was highly selective, such that participants excluded by females mimicked females more than they mimicked males; participants excluded by males or not excluded at all showed no difference in mimicry of female and male participants. Further, ratings of perceived belongingness were positively associated with the extent of mimicry, but only among participants who were both rejected by females and interacted with female confederates. The authors suggest that mimicry is directed toward targets who share similarity to themselves and their rejectors, allowing them to reestablish membership in the in-group. Because only females were studied and gender was used as a proxy for group membership, more research is needed to support this reasoning. The results nonetheless suggest that behavioral mimicry as a proximity seeking strategy is flexible and likely to be directed toward those who offer the best potential for reestablishing a sense of connection.

Sensitivity to social cues and behavioral mimicry likely reflect relatively automatic workings of the attachment system that precede thoughtful consideration of others as warm and accepting or cold and rejecting. Once proximity goals have been activated, relatively conscious appraisals of others as capable of meeting attachment needs are likely to take over as determinants of broad social and emotional responses to rejection.

Self-Protection

We believe that self-protective strategies that minimize the pain of rejection will emerge when situational cues or features of the initial rejection experience point to a high probability of additional rejection. According to Murray and colleagues (2006), self-protection could take the form of heightened vigilance to threat and attempts to elicit expressions of affection from others (hyperactivating strategies) or the dismissal of others

altogether (deactivating strategies). In the context of peer rejection, anxious attempts to elicit evidence of another's affection would likely be restricted to situations in which the rejected person has a close, prior relationship with the target and the rejected person can be somewhat confident that his or her attempts to solicit reassurance will be successful. To our knowledge, this type of scenario has not received much attention in the social psychology literature. Rather, interpersonal responses to peer rejection and other forms of exclusion are typically examined within the context of interactions with acquaintances or strangers. In the absence of close interpersonal ties with targets of potential connection, we suggest that self-protective responses to rejection will most often take the form of deactivation strategies that include avoiding closeness with others and cognitively dismissing the importance of relationships. These strategies are likely to be more effective in buffering the pain of perceived, impending rejection, in comparison to approach behaviors, which are likely to further exacerbate distress (Cassidy & Kobak, 1988).

Sommer and Tallon (2008) used a conformity paradigm for examining how people resolve competing goals for self-protection and connection when presented with the possibility of expulsion from their groups. Conformity often results from a process of normative influence, characterized by a desire to avoid rejection and maintain harmony with group members (Deutsch & Gerard, 1955). A logical extension of this principle is that rejection threat will increase conformity to one's group in an effort to decrease the probability of rejection. Sommer and Tallon reasoned, however, that group members might defensively sever emotional ties with the group in an effort to quell the anxiety associated with possible rejection, resulting in a decrease rather than increase in conformity.

In the first of two studies, groups of three or four participants spent several minutes getting to know one another. Half the groups were then informed that they would later have to vote out one member of the group (to meet the demands of a future experimental task), whereas the remaining half did not receive this instruction. Participants rendered verdicts on a jury case after learning of the ostensible (prefabricated) verdicts of their group members, with the expectation that they would reconvene to deliberate on the case. Despite knowledge that verdict conformity would likely be used as a basis for determining who would be voted out of the group, rejection threatened participants conformed less than nonthreatened participants.

In the second study, Sommer and Tallon added a control condition in which members remained unaffiliated prior to the conformity task. They

also manipulated whether or not group members expected to deliberate with their groups. Results revealed that nonthreatened, affiliated participants conformed significantly more in the deliberation compared to no deliberation condition, providing clear evidence of conformity via normative influence (Deutsch & Gerard, 1955; Jackson & Saltzstein, 1958). Control (unaffiliated) participants also showed evidence of conformity via normative influence, albeit to a weaker extent. Only rejection-threatened participants remained unaffected by the prospect of having to reconvene and deliberate with their groups. Analyses of participants' self-reported attraction to their groups provided further evidence of self-protection among the threatened. Specifically, threatened participants reported lower liking for, and identification with, group members when expecting to deliberate with them compared to not deliberate. By comparison, non-threatened affiliated members' attraction to their groups was consistently high, whereas unaffiliated members' attraction was consistently low.

Collectively, the findings suggested that individuals threatened with the possibility of expulsion distance themselves emotionally and cognitively from group members when expecting to face them again, leaving them relatively impervious to conformity pressures. Put another way, rejection-threatened individuals counterproductively abandon strategies that effectively decrease the probability of rejection in favor of those that protect themselves from future pain.

The findings of Sommer and Tallon (2008) are consistent with those of several older studies linking actual rejection with a reduction in conformity toward rejecting groups (Jackson & Saltzstein, 1958; Wyer, 1966; Zeff & Iverson, 1966). Of particular relevance is one study revealing that the relationship between rejection and conformity depends on how conformity is assessed. Dittes and Kelley (1956) found that rejection by group members decreased attitudinal conformity, as assessed through self-report. However, when members reconvened to discuss the task, those who were rejected most by their groups were the least likely to verbally oppose the group's decision. Dittes and Kelly noted that "public" conformity among the rejected was not motivated by desire to stay in the group but used "as a means of forestalling . . . rejection" (p. 106). These findings dovetail nicely with Murray et al.'s (2006) position that self-protection includes efforts to minimize both the short-term risk of rejection and the long-term pain of rejection.

At least one study, however, has revealed evidence for higher rather than lower levels of conformity following rejection. Williams, Cheung, and Choi (2000) found that participants ostracized from a Cyberball game

were more likely than included participants to conform to a new group. Though the discrepancy between this and previous findings might be due in part to the way in which rejection was operationalized, we suspect that the primary reason conformity occurred in the Williams et al. study is that sources of conformity pressure were new (nonrejecting) targets. Thus, participants in the Williams et al. study may have perceived little risk in drawing closer to new group members, focusing instead on the potential payoffs of conformity in the way of feelings of belongingness. By comparison, participants in previous studies likely saw little to be gained and much to be lost through conforming to rejecting or rejection-threatening groups, thereby leading them to favor self-protection over relationship-enhancing goals.

Additional evidence for self-protection was provided in a study examining autobiographical narratives about social ostracism. Sommer, Williams, Ciarocco, and Baumeister (2001) asked respondents of varying self-esteem to describe their experiences with giving and receiving the silent treatment. They also asked narrators to provide scale ratings of how frequently they used and experienced the silent treatment. In line with sociometer theory (Leary et al., 1995), they found that respondents higher in self-esteem reported fewer experiences with being ignored ($r = -.33$). High self-esteem respondents also reported using the silent treatment less frequently than low self-esteem respondents ($r = -.45$). Content analyses of narratives revealed that when high self-esteem individuals did use the silent treatment, they used it to terminate relationships with ostracizing partners, perhaps because they saw more opportunities for connection with other individuals and felt they deserve better treatment (Rusbult, Morrow, & Johnson, 1987). Low self-esteem narrators, conversely, were more likely to use the silent treatment for “defensive” reasons. Specifically, they used ostracism as a preemptive means of dissociating from those who were critical of them, and/or to avoid feeling inferior to their partners. These findings established social ostracism as a self-protective tool for coping with relationship conflict among those who trust least in their partners’ regard for them.

In a study that directly examined the role of social expectancies in self-protective responses to rejection, Sommer, Bernieri, Barkowski, Czajka, and Raymond (2006) randomly paired unacquainted college students and asked them to spend a few minutes getting to know one another. They were then separated and asked to rate each other on several items that included liking and desire for friendship, with the understanding that they would get to see what kind of impression they

made on their partners. Real rating forms were replaced with bogus forms suggesting that participants made either positive or negative impressions on their partners. Each member of the dyad was then paired with a second interaction partner who was unaware of the experimental manipulation. Accepted and rejected participants interacted with their new partners for 10 minutes, after which members were separated and asked to rate one another along a series of positive and negative trait dimensions. They also rated feelings of closeness and rapport with their new partner. Immediately preceding the second interaction, accepted and rejected participants reported how much they were looking forward to meeting their new interaction partner (desire for interaction), how much they expected their partner to like them (social expectancies), how much they thought they would like their partner (anticipated liking), and how much they cared about whether the person liked them (concern for relationship).

Consistent with predictions, rejected compared to accepted participants reported lower desire to meet with the new partner, more negative social expectancies, lower anticipated liking of their partners, and less concern about the quality of the relationship. Regression analyses revealed that social expectancies mediated the effects of feedback on both anticipated liking of partners and concern for the relationship. In other words, participants anticipated disliking their new partners and expressed diminished concern for the relationship to the extent that they expected to be rejected by their new partners.

Additional analyses revealed that anticipated disliking of partners carried over into the interaction to influence ratings of partners' traits. Compared to accepted participants, rejected participants saw fewer positive traits in their partners. (Negative traits were not impacted.) Rejected participants also reported feeling less closeness and weaker rapport with their partners. Thus, not only did rejected individuals enter new interactions expecting the worst from their new interaction partners, but they ultimately ended up seeing the worst in these partners. These findings are consistent with past research revealing that people reconstruct memories for specific interactions in ways that are consistent with working models of others (Collins & Feeney, 2004; Feeney & Cassidy, 2003). In this study, individuals appeared to assimilate new information about their partners in a way that was consistent with existing expectations.

Perhaps most interesting were the trait ratings provided by accepted and rejected participants' interaction partners. Though rejected participants reported more negative views of their new partners, the partners

themselves saw rejected participants as being less critical, arrogant, and fake than accepted participants. This study was recently replicated using a sample drawn from a different population (Sommer, Benkendorf, & Bruno, 2008), and a similar pattern of findings was obtained. Specifically, partners rated rejected participants as more calm and self-assured, and less controlling and critical than accepted participants. As of now, it is unclear whether the relatively favorable impressions made by rejected participants resulted from willful attempts on the part of these individuals to “forestall” short-term rejection (for example, by disclosing less or diverting attention to their partners), from general feelings of detachment and disengagement, or from nonconscious proximity seeking behaviors such as behavioral mimicry. Videotaped interactions between accepted and rejected participants and their interaction partners are currently being coded in an effort to identify the behavioral underpinnings of these effects.

As additional evidence of self-protection, we point to several studies examining noninterpersonal responses to social exclusion. These include blunted emotion (Twenge, Catanese, & Baumeister, 2003), lack of empathy (DeWall & Baumeister, 2006; Twenge, Baumeister, et al., 2007), reductions in complex thought (Baumeister, Twenge, & Nuss, 2002), and insensitivity to pain (DeWall & Baumeister, 2006). Indeed, the emotional and cognitive responses of excluded people show a striking parallel to chronic patterns of people with avoidant attachment styles (e.g., Fraley, Davis, & Shaver, 1998; Fraley & Shaver, 1997; Mikulincer et al., 2001). It is important to note that the majority of social exclusion studies mentioned above induced rejection through bogus feedback on a personality test suggesting that participants were doomed to a life of loneliness and loss of social connections. In our view, self-protection defenses should be particularly strong in response to these types of manipulations, because they eliminate nearly everyone as potential sources of connection.

Finally, “antisocial” responses to rejection such as actual or intended aggression (Buckley et al., 2004; Dodge et al., 2003; Phillips Keane et al., 1990; Rabiner et al., 1990; Twenge et al., 2001) and low levels of helping behavior (Twenge, Baumeister et al., 2007) might have as their foundation the deactivation strategies described by attachment theorists. These strategies include the suppression of anxiety and other negative emotions, distancing of threat, and the quest for self-reliance. Twenge et al. (2001) speculated that aggression might reflect the failure to override aggressive impulses that are normally suppressed in the service of relationship-promotive goals. Defensive efforts to dismiss the importance

of others' acceptance, coupled with an inability or unwillingness to experience others' pain, likely compromise the sense of social connectedness that typically prevents people from behaving badly or failing to behave kindly. At least one study has linked loss of prosocial behavior following rejection to a reduction in empathy (Twenge, Baumeister, et al., 2007) and other studies have demonstrated that aggression can be curbed by replenishing a sense of connections with others (Twenge, Zhang, et al., 2007, described below). Thus, the key to undoing aggressive reactions to rejection might lie with shifting people away from self-protection goals and toward relationship-promotive goals.

In sum, rejected individuals display a variety of self-protective responses to rejection. These include the derogation of others, limited encoding of emotional information, and insensitivity to the pain and suffering of others. In face-to-face interactions, self-protection efforts to delay or forestall rejection take the form of suppressing the expression of negative traits, refusing to argue with others, and ostracizing others. Readers might note that the behavioral concomitants or consequences of pain avoidance (such as derogation of others and overt aggression toward others) also increase the possibility of real rejection. Thus, part of the challenge for future research is to determine when and why people prioritize emotional self-protection goals over behavioral ones.

Social Expectancies and the Replenishment of Connections

The role of social expectancies in interpersonal responses to social rejection was discussed in an earlier chapter by the first author (Sommer & Rubin, 2005). Since then, several studies have provided direct support for the importance of social expectancies and related constructs in determining whether rejected people seek to fortify connections with others or withdraw from others.

Twenge and colleagues (Twenge, Zhang, et al., 2007) recently found that aggressive responses to rejection can be reduced by replenishing individuals' sense of connection with others. Twenge et al. gave participants who had previously been either accepted or rejected a small bag of candy and thanked them or simply handed them a receipt indicating that they would receive credit for their participation. Rejected participants who received the friendly social connection (compared to rejected individuals who received the receipt) delivered noise blasts to a new person that were significantly lower in intensity and duration, whereas aggression

among accepted participants was low and did not vary according to experimenter feedback. Follow-up experiments revealed that the link between rejection and aggression was also eliminated by having participants write about their best friend or favorite celebrity. A final study revealed that reductions in aggression after being reminded of an important social connection were partly mediated by a renewed sense of trust in others. Thus, though links between rejection and aggression in everyday life could be the result of several factors (e.g., hurt feelings, revenge, and loss of self-control) (Leary, Twenge, & Quinlivan, 2006), the findings of Twenge, Zhang, et al. (2007) suggest that broad views of others as trustworthy are at least one factor in attenuating the effects of rejection on aggression.

Dotan-Eliaz, Rubin, and Sommer (2008) examined individual differences in social expectancies as moderators of behavioral responses to social ostracism. Participants were linguistically ostracized or included by two Russian-speaking confederates and then asked to complete a brainstorming task that involved generating creative uses for an object. Participants completed the task under the assumption that their uses would be evaluated individually or that they would be combined with those of group members and evaluated collectively. Prior to the experiment, participants completed a social self-efficacy scale assessing their perceived ability to make friends. Results revealed that when participants expected to be evaluated independently of their groups, language condition and social self-efficacy had no impact on performance on the brainstorming task. When they expected their uses to be combined for the purposes of group evaluation, however, language use and social self-efficacy interacted to predict performance. Specifically, participants high in social self-efficacy outperformed those low in social self-efficacy following linguistic ostracism, whereas no differences occurred following linguistic inclusion. This interaction was driven primarily by a loss in performance motivation among those low in social self-efficacy who were ostracized from their groups. Importantly, ostracized (compared to included) participants reported liking their group members less and feeling more rejected regardless of individual differences in social self-efficacy. Thus, while everyone appeared to be hurt by the ostracism, only those who likely felt that efforts to regain acceptance would be futile behaved in ways that ultimately hurt group performance.

A similar study by Williams and Sommer (1997) found that both males and females disliked and felt rejected by their coworkers after being ostracized compared to being included by their groups. However, females worked harder on a subsequent collective (compared to individual) task,

whereas males socially loafed. Though social expectancies were not assessed in this study, the authors reasoned that females (who also reported feeling more responsible for their groups) likely viewed strong performance on the group task as a vehicle for regaining a sense of inclusion within their groups.

A recent series of studies by Maner, DeWall, Baumeister, and Schaller (2007) provided the strongest evidence to date of increased proximity seeking among rejected individuals. They found that participants reminded of a prior rejection (compared to acceptance) reported greater interest in meeting people outside of the experiment. In another study, those who imagined a life of future loneliness compared to a life of meaningful connections or other unfortunate outcomes preferred to complete an experimental task with others rather than alone. Underlining the importance of social expectancies, two additional studies revealed that rejected compared to control participants rated a future task partner as more sociable, and were more likely to evaluate a prospective partner favorably, but only if they were dispositionally low in fear of negative evaluation. Those high in fear of negative evaluation showed no differences between conditions. A final experiment revealed that rejected (compared to control) participants assigned greater monetary rewards to novel interaction partners only if they expected to meet them. When no interaction was anticipated, rejected participants assigned significantly fewer rewards. The authors concluded that rejection “seems to foster judicious warmth that is aimed selectively at promising targets” (p. 53). That is, rejection causes individuals to seek closeness only when they can be relatively optimistic about the possibility for future connection.

Taken together, recent findings suggest that interpersonal responses to rejection tend to shift away from aggression and toward relationship-enhancing cognitions and behaviors when features of the situation or person’s disposition point to high probability of acceptance. These findings further underscore the importance of gauging target-specific appraisals when attempting to predict how rejection will influence people’s behaviors toward others.

AREAS FOR FUTURE RESEARCH

The research evidence on rejection to date appears to conform well to the goal-directed processes described in models of attachment regulation within close relationships. For this reason, we see great value in future

work that tests some of the assumptions of these models directly. To this end, we have identified two research questions that we feel are critical to future research on this topic.

Seeking Acceptance Versus Avoiding Rejection

Murray and colleagues (2006) noted that reducing risk in close relationships requires that one sacrifice the potential for increased intimacy. Risk-reducing behaviors include reducing dependency on the partner (through derogation and devaluing of partners) and seeking connection elsewhere (Murray et al., 2006). In face-to-face interactions, reducing risk might also include disclosing less to the partner (particularly negative information about the self), withholding direct criticism of the partner, and generally shifting the focus of attention off of the self and onto the partner (Murray et al., 2006; Dittes & Kelley, 1956). From the perspective of an outside observer, these latter behaviors could be interpreted as evidence that the rejected person is seeking to garner acceptance from the partner as opposed to minimize rejection by the partner. Furthermore, in certain contexts, both goals for connectedness (characteristic of positive social expectancies) and self-protection (characteristic of negative social expectancies) might result in similar outcomes, including less interpersonal conflict and relatively favorable impressions by others.

For this reason, we discourage researchers working in developmental or social psychology from relying too heavily on interpersonal outcomes as a window for understanding the motives that are at play. Further, future studies would benefit from assessing simultaneously multiple outcomes associated with rejection. Motives to fortify bonds should be marked by positive views of others, higher levels of empathic concern, and a willingness to take emotional and social risks. Motives to protect the self should be reflected in more negative views of others, lower concern for others, and risk-avoidance. To the extent that these outcomes are assessed at the same (implicit or explicit) level, they should further be expected to correlate with (and perhaps mediate) one another. A multifaceted approach such as this would provide a more complete picture of how rejected individuals are appraising their social environments.

Implicit Versus Explicit Processes

Central to both attachment theory and the risk regulation model is the notion that some proximity seeking occurs spontaneously as part of the

quest for felt security and that defensive attempts to minimize the pain of rejection through derogation and distancing of others requires conscious appraisal of situations as risky and likely to result in rejection. While the existing social psychology work on rejection is generally consistent with these assumptions, more attention to the distinction between nonconscious and conscious processes is needed. To this end, future studies might incorporate depletion or cognitive load manipulations to isolate those mechanisms that require high levels of effort or attentional processing. Following Murray et al. (2008), for example, we would expect that any task that compromises executive system functioning (thereby suppressing self-protection defenses) would allow proximity-seeking behaviors to surface more readily. Such a finding should be particularly likely when targets of potential reconnection are new or novel relationship partners (and proximity goals precede self-protection goals). Indeed, the mere task of interacting with others and managing impressions might be resource depleting (Vohs, Baumeister, & Ciarocco, 2005), allowing distress-related cognitions and proximity-seeking behaviors to surface. We therefore emphasize the importance of future research that assesses both implicit and explicit processes in the same people and examines the role these processes play in shaping others' impressions of them.

IMPLICATIONS FOR CHILDHOOD REJECTION/BULLYING

Though the majority of social psychological work on rejection has relied on college students as research participants, our review of the developmental literature on rejection suggests a striking convergence in the ways children and young adults respond to rejection by their peers. Findings from these literatures also dovetail nicely with regard to the critical role of social expectancies in interpersonal responses to rejection. For example, childhood aggression is often the result of a "hostile attribution bias" in which ambiguous social behaviors are perceived as antagonistic in nature (Crick & Dodge, 1996; Crick, Grotpeter, & Bigbee, 2002; Dodge, 1980; Guerra & Slaby, 1989; Quiggle, Garber, Panak, & Dodge, 1992). The inclination to generate negative, hostile attributions for ambiguous behaviors is particularly prominent among children of chronically rejected or neglected status (Crick & Dodge, 1994; Dodge, Murphy, & Buchsbaum, 1984). Accepted children and those of average status, by contrast, react to interpersonal slights with less aggression and more prosocial attributions, and they are more accurate at distinguishing between

prosocial and antisocial intentions (Nelson & Crick, 1999). In a similar vein, individual differences in rejection sensitivity, defined as anxious expectations of rejection (Downey & Feldman, 1996), best predict internalization and externalization behaviors among children classified as rejected by their peers (Sandstrom, Cillessen, & Eisenhower, 2003).

Over time, well-rehearsed emotional and behavioral defenses against peer rejection are likely to be difficult to override, resulting in behaviors that function to bring about even more rejection (Crick & Dodge, 1996; Hodges & Perry, 1999). Altering the trajectory of aggressive responses to peer rejection would seem to require cognitive interventions that directly modify appraisals of specific interaction partners (and possibly others in general) as likely to be warm and accepting or cold and rejecting. To our knowledge, only one study has manipulated expectations of acceptance, and the results were promising. Rabiner and Coie (1989) identified African American boys and girls who were popular or rejected by their peers and introduced these children to “host” children from a different school. Half the children within each social status category were later led to believe that the host children had really liked them, whereas the remaining half were told nothing. Children were then reintroduced to host children and their interactions were videotaped. Results showed that host children showed a strong preference for rejected children who received the positive expectancy induction compared to those who did not, whereas preferences for popular children did not vary according to experimental condition. Analysis of girls’ (but not boys’) behaviors indicated that rejected girls who received the expectancy induction behaved more competently and were more engaged in their interactions than those who did not. These findings strongly implicate the role of social expectancies in altering behavioral responses to chronic peer rejection.

SUMMARY

The past decade of research in social psychology has produced a rich and complex set of findings regarding the consequences of interpersonal rejection. Theoretical work on this topic has been slower to develop, however, prolonging confusion regarding the conditions under which rejection can be expected to result in behaviors that effectively fortify or destroy interpersonal bonds. Drawing heavily from attachment theory (Bowlby, 1969, 1973, 1982; Mikulincer & Shaver, 2003; Hazan & Shaver, 1994; Pietromonaco & Feldman-Barrett, 2000) and a recent model of

risk regulation in close relationships (Murray et al., 2006, 2008), we suggest that emotional, cognitive, and behavioral outcomes of rejection can be consolidated and organized within a larger motivational framework that gives equal weight to goals for replenishing connections and protecting the self from future harm. Also in line with these models, we assume that conscious appraisals of others as likely to be accepting or rejecting drive the magnitude of these responses as well as the amount of future closeness that rejected individuals are willing to risk. Future work on this topic within both social and developmental psychology would benefit from adopting an attachment regulation perspective as well as examining the extent to which goal-directed responses to rejection operate on an implicit or explicit level.

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11

Alone and Aggressive: Social Exclusion Impairs Self-Control and Empathy and Increases Hostile Cognition and Aggression

A. WILLIAM CRESCIONI AND ROY F. BAUMEISTER

It is not without reason that people sometimes find themselves obsessing over the social hierarchy. The human desire to belong is more than a superficial drive for social status; it is a fundamental need underlying positive and adaptive functioning (Baumeister & Leary, 1995). In order to succeed, a species must possess some adaptive trait that allows it to negotiate the environment. Birds have their wings, the turtle has its shell; mankind has the tribe, the city, and the civilization. Complex social systems such as culture are a major biological strategy of humankind (Baumeister, 2005).

That human beings across the globe universally form themselves into social groups is a testament to the necessity of this adaptive behavior. It is therefore no surprise that social rejection should carry with it myriad consequences. The act of being rejected by an individual or of being excluded from the group has ramifications for both the victim of the rejection and for those with whom he or she will go on to interact. Perhaps the gravest of these consequences is the potential for the rejected individual to react aggressively to being rejected. One explanation is that this aggression is the result of emotional distress engendered by social rejection. Thus distressed, the rejected individual would be motivated to aggress against those who had perpetrated the rejection. Such an explanation seems to fit well with the image of the school gunman: the jaded

loner pushed to the edge by chronic rejection. Although this explanation is intuitively appealing, laboratory studies have failed to support a mediational role of emotional distress (Twenge, Baumeister, Tice, & Stucke, 2001). Studies (Twenge et al., 2001) supported the existence of a link between rejection and aggression, but the causal pathway linking the two remained unknown.

The goal of this chapter is to cover a research program that has explored the effects of interpersonal rejection and exclusion on aggression. We shall cover evidence that being socially rejected by others leads to an increase in aggression. Then we shall consider various competing theories about why it is that rejected, excluded people become aggressive.

This chapter will be divided into eight sections. The first will describe the fundamental need to belong that is central to human functioning. The second will address the laboratory methods we have employed to manipulate social rejection. The third will describe research establishing the link between social rejection and aggression. Emotion, self-regulation, hostile cognition, and meaningfulness have been identified as factors relevant to the link between rejection and aggression, and a section will be dedicated to treating each of these topics. Finally, implications and future directions will be discussed.

THE NEED TO BELONG

Baumeister and Leary (1995) compiled psychological literature supporting the idea that belongingness has broad-based implications in spheres such as cognition, emotion, motivation, and health. A multitude of studies indicated that the importance of belongingness is not a product of specific cultural imperatives but rather seems fairly universal across civilizations and time. People form social bonds readily and strongly resist the severing of those bonds. Considering the adaptive advantages conferred by group membership, the human drive to attain acceptance and the frequent distress at losing it are of little surprise. The individual is at a distinct disadvantage when competing for resources against the group, so much so that acceptance versus rejection could mean the difference between life and death in a situation of resource scarcity. Hence it is likely that humans evolved to strive to form social groups.

Given the crucial importance of belonging, it would seem reasonable that the most adaptive response to rejection would be to act to enhance

one's own social desirability in general. It would seem counterintuitive, therefore, for individuals to become aggressive rather than cooperative following rejection. Initial research on the link between aggression and rejection thus faced two challenges. The first was to prove the existence of a causal path leading from rejection to aggression. The second was to identify the mechanism or mechanisms driving this path. Research has dealt with both of these tasks, and this chapter will review the progress that has been made.

MANIPULATIONS OF SOCIAL REJECTION

In this section, we review laboratory procedures for studying social exclusion. The studies outlined in this chapter used six different methods of manipulating social rejection. This variety allowed for replications of effect via multiple manipulations and strengthened the converging evidence generated.

The first of these methods involves providing participants with bogus feedback to a personality questionnaire (typically the Eysenck Personality Questionnaire [Eysenck & Eysenck, 1975], although in principle many different questionnaires might serve to provide the pretext for the feedback). After completing the questionnaire, subjects are given accurate feedback regarding their extraversion score as a means of strengthening the credibility of the test. After this, participants are provided with feedback about their prospects later in life. This feedback is fictitious and the content of the prediction is determined by random assignment. In the Future Belonging condition, the participant is told, "You're the type who has rewarding relationships throughout life. You're likely to have a long and stable marriage and have friendships that will last into your later years. The odds are that you'll always have friends and people who care about you" (e.g., Twenge et al., 2001, p. 1060).

In the Future Alone condition, participants are told, "You're the type who will end up alone later in life. You may have friends and relationships right now, but by your mid-20s most of those will have drifted away. You may even marry or have several marriages, but these are likely to be short-lived and not continue into your 30s. Relationships don't last, and when you're past the age where most people are constantly forming new relationships, the odds are you'll end up being alone more and more." Our research is most concerned with participants in this condition, as they are led to believe that their need to belong will be thwarted.

A third condition acts as a control. In the Misfortune Control condition, participants are told, “You’re likely to be accident prone later in life—you might break an arm or a leg a few times, or maybe be injured in car accidents. Even if you haven’t been accident prone before, these things will show up later in life, and the odds are that you will have a lot of accidents.” This condition was intended to provide a manipulation that was affectively negative but socially neutral. This would allow the effects of social rejection to be differentiated from those of negative affect.

Some studies used a fourth condition, the No Feedback condition. In this condition, participants completed the personality questionnaire but received no feedback from the experimenter. This condition provided a pure control, allowing the effects of various feedbacks to be compared to the absence of feedback.

A similar feedback manipulation was developed by Carvallo and Gabriel (2005), in order to isolate the effects of social exclusion feedback from other kinds of bad news and to control for overall negativity. Participants received feedback on a personality test related to their surgency. Participants read an article, supposedly taken from the magazine *Psychology*, indicating that individuals high in surgency would either enjoy individual (i.e. professional) success or interpersonal (i.e., social) success. Participants then randomly received feedback indicating that they possessed either high or low surgency. This created four groups: interpersonal failure, interpersonal success, individual failure, and individual success. This allowed the effects of positive and negative forecasts for future social interactions to be contrasted with positive and negative forecasts not involving belongingness.

Other studies used a more direct and immediate form of rejection than the personality feedback method discussed previously (e.g., Leary, Tambor, Terdal, & Downs, 1995; Nezlek, Kowalski, Leary, Blevins, & Holgate, 1997; and Twenge et al., 2001). In these studies, participants are brought into the lab in groups of 4 to 6 and engage in a get-acquainted task. Participants are then asked to list two group members they would like to work with in the next portion of the experiment. All participants are then told that they will be completing the next portion of the experiment alone, with the reason given constituting the manipulation of rejection. By random assignment, half of the participants are told that everyone else had expressed a desire to work with them, while the other half are told that no one else had expressed a desire to work with them. All participants were told that they would complete the remainder of the

experiment alone, either because no one was willing to work with them (rejection condition) or because the fact that all other participants had indicated a desire to work with them made the forming of two-person groups impossible. Participants given the first explanation are of particular interest, as these participants experience a direct rejection by their peers.

A third method involves having participants write a brief but detailed autobiographical narrative. By random assignment, participants are instructed to think and write about a time when they experienced either social acceptance or a time when they experienced social rejection. More specifically, in the rejection condition, participants are told to write about a time “when you felt that others did not want to be in your company and when you did not feel a strong sense of belongingness with another person or group.” In a control condition, participants simply recall their activities on the previous day and then write an essay concerning those activities. Previous research has shown that this vivid recall task produces some effects similar to those seen in manipulations of immediate rejection (Pickett, Gardner, & Knowles, 2004).

In a fourth manipulation, participants get acquainted with a partner who then either expresses a desire to continue working with the participant or refuses to continue working with participant. This method has been used numerous times to manipulate social rejection (Bushman, Bonacci, Van Dijk, & Baumeister, 2003; Maner, DeWall, Baumeister, & Schaller, 2007; Vorauer, Cameron, Holmes, & Pearce, 2003). Participants are told that they will be working with a partner in the study, and that they will be exchanging video messages before they meet face to face. Participants are shown a videotape purportedly made by their partner depicting a same-sex confederate responding to a series of questions about topics such as career aspirations and personality. Participants then create a response video, which the experimenter supposedly takes to the other participant in the study.

After a few minutes, the experimenter returns and delivers the rejection manipulation. Participants in the acceptance conditions are told their partner had a very favorable impression of them and is looking forward to meeting them. In the rejection condition participants are told that their partner became upset and refused to meet with them after viewing the response tape. When explaining this to participants, the experimenter places great emphasis on the fact that the participant's partner had an extremely negative reaction to the tape and that they seemed distressed when refusing to continue. Participants are therefore led to

believe that something about their self-presentation in the tape led to this rejection. In a control condition, subjects are told that their partner had to leave before viewing their tape because of a prior appointment and therefore will not be able to meet with them. This condition allowed the effects of being left alone for reasons not related to the self to be differentiated from the effects of being left alone due to a purposeful and potentially threatening rejection.

A fifth method of rejection utilizes a computer program called Cyberball (Williams, Cheung, & Choi, 2000). Participants playing Cyberball are presented with a screen depicting four “players” who are supposedly each controlled by participants in the study. During the game a ball is passed between each player, with the player making the choice of whom to pass the ball to each time they receive it. In reality, only one of the players is controlled by a participant, while the others are controlled by the computer. Cyberball presents participants with one of three conditions. In the *acceptance* condition, the three computer-controlled players pass the ball evenly amongst themselves and the participant. In the *other exclude* condition two of the computer-controlled players pass the ball evenly amongst themselves and the participant, but they do not pass the ball to the third computer player. In the *self exclude* condition, the three computer players begin by passing the ball evenly as in the acceptance condition, but gradually they decrease the amount of passes given to the participant, eventually abstaining from passing to the participant altogether.

Some might argue that these manipulations are poor substitutes for actual rejection. Data clearly show, however, that these manipulations produce powerful psychological effects (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Twenge et al., 2001; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007; Twenge, Catanese, & Baumeister, 2003). Being told that a test indicates one will have a lonely future or being rejected by a group of people one has just met may pale in comparison to being rejected by a romantic partner or failing to gain admission to a competitive academic program. Nevertheless, these manipulations produce reliable and potent results and have allowed a number of hypotheses related to rejection and aggression to be effectively tested.

REJECTION AS A CAUSAL AGENT OF AGGRESSION

A link between rejection and aggression presents two potential directions of causation that, a priori, are equally plausible. It is possible the

aggressive individuals are seen as less attractive group members. This perception could lead to the aggressive individual being frequently rejected by others, such that the individual's aggressive behavior would be the cause of their being socially rejected. Alternately, individuals who are socially rejected could become more aggressive as a consequence of this rejection. In this model, the causal arrow is reversed, and aggression becomes the consequence of social rejection rather than its progenitor.

There is a correlation between social isolation and aggression. Single men are more likely to commit aggressive crimes than are married men (Sampson & Laub, 1993). Children who are rejected by their peers also show greater aggression (Coie, 1990; Newcomb, Bukowski, & Pattee, 1993). That the two phenomena are correlated says nothing about their causal relationship. The controlled environment of the laboratory, however, allows the distinction between these two proposed causal paths to be made. If rejection was indeed only a consequence and not a cause of aggression, then participants exposed to social rejection in the lab would be no more aggressive than their accepted peers. If the experience of rejection could be shown to reliably predict increased aggressive behavior, however, it would be clear that the experience of rejection was having an impact on the target's level of aggression.

To test this hypothesis, Twenge, Baumeister, Tice, and Stucke (2001) designed a study in which participants were made to experience rejection and then given the opportunity to aggress against a partner. Participants were brought into the lab and completed a personality questionnaire (the Eysenck Personality Questionnaire; Eysenck & Eysenck, 1975). They were then instructed to write an essay supporting or opposing abortion. Participants were allowed to choose which side they wished to represent. After completing this task, participants were presented with an essay ostensibly written by a second participant in the study and asked to provide a critical evaluation. In reality, the essay was a stock essay that had been written by the experimenter and always expressed a view opposite to that of the participant.

After completing this task, rejection was manipulated using the false feedback paradigm previously outlined. Participants were randomly assigned to receive feedback on their personality questionnaire indicating that they would be alone later in life, that they would enjoy numerous fulfilling relationships later in life, or that they would be accident prone later in life. Participants then received feedback on their own essay supposedly provided by their partner in the study. The feedback was either positive ("A very good essay!") or negative ("One of the worst essays I've

ever read!”). After this, participants were asked to complete an evaluation of their partner in the experiment. The experimenter informed participants that their partner was applying for an extremely competitive position as a research assistant in the lab. To ensure that only qualified individuals obtained the positions, the department was interested in obtaining as much feedback as possible about each candidate. This evaluation provided participants with the opportunity to aggress, as a negative evaluation could harm their partner’s chances of obtaining a competitive and highly coveted job. Job relevant evaluations have been used as measure of aggression in many previous studies (e.g., Kulik & Brown, 1979; O’Neal & Taylor, 1989). It was expected that social exclusion, if it indeed causes aggression, would lead participants to provide more negative evaluations of their partners.

The results of this study supported the hypothesis that being socially rejected would increase an individual’s level of aggression. Participants told they were headed for a lonely future gave significantly more negative evaluations of their partner than did participants in any other condition. This increase in aggression was not due merely to the negativity of the forecasts, as those receiving Future Alone predictions gave lower evaluations than those receiving Misfortune Control feedback. The criticism participants received from their partners regarding their essays was also an insufficient explanation, as a control group given negative essay feedback but no feedback on their personality test gave significantly more positive evaluations than did those who received Future Alone feedback. The effect size for the Future Alone versus Future Belong contrast was $d = 1.59$, nearly double Cohen’s (1977) .80 criterion for large effect sizes. Being presented with a dire social future had not merely increased aggression—it had increased it dramatically.

The above study demonstrated that a link did exist between social rejection and aggression, and that social rejection held the position of temporal precedence in that link. An objection could be raised to the measure of aggression, however. Although negative job evaluations are well validated as a measure of aggression, this method seems far removed from the overt, explosive violence perpetrated by individuals such as school gunmen. That rejected individuals were more likely to evaluate their partners negatively did not necessarily support the claim that social rejection can result in violent aggression.

To provide evidence for rejection’s link with violent aggression, Twenge, Baumeister, Tice, and Stucke (2001) conducted a study using a more direct form of rejection. Further, they used a more immediate and

acute form of social rejection than the personality feedback previously employed. This study used the group rejection method described previously. After engaging in group discussion for 15 minutes, participants were brought to separate rooms and asked to write down the names of the two members of the group they would most like to work with during the next phase of the experiment. The experimenter collected their preferences and then instructed participants to write an essay concerning abortion, as in the previous study. The experimenter returned after a few minutes and delivered the rejection manipulation. Participants in the acceptance condition were told that everyone had indicated a desire to work with them, whereas those in the rejection conditions were told that no one had expressed a desire to work with them.

In both cases, participants were told that this had made forming groups impossible and that they would therefore be taking part in the next phase of the experiment with a new participant whom they had not met earlier and who was making up a previously missed experiment. Participants then completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) to test for mood effects. The final task participants completed was a reaction time game in which losing players received a blast of abrasive noise through their headphones. To facilitate a measure of aggression, the intensity and duration of the noise blast players received were determined before each trial of the game by their opponent. If social rejection leads to an increase in violent aggression, then participants in the rejection condition ought to deliver more aggressive blasts of noise to their opponents.

Consistent with this hypothesis, participants who were told that the group had rejected them chose significantly louder and longer noise blasts than did participants in the acceptance condition. The impact of rejection on aggression was again sizeable, with rejected participants delivering noise blasts that averaged twice the intensity and duration of those chosen by accepted participants. Comparing the composite aggression scores of rejected and accepted participants yielded an effect size of $d = 1.35$, which again well exceeds the criteria set by Cohen (1977) for a large effect. These results thus support the existence of a causal link between social rejection and violent interpersonal aggression. Specifically, rejection causes aggression.

Although the above study offered support of the hypothesis that rejection leads to aggression, it left open a possible alternative interpretation. Although rejection had indeed led to an increase in aggression, this aggression had occurred in the context of provocation. Participants had

been evaluating a target who had previously provided a negative assessment of their writing ability. This could well have been taken as a personal insult and thus offered provocation against which the participant retaliated. That rejected individuals were more aggressive was clear, but perhaps this difference existed only in the context of provocation. To determine whether provocation was a prerequisite to aggression, the previous study was replicated with the alteration that participants received positive, flattering feedback in place of the negative feedback previously employed (Twenge, Catanese, & Baumeister, 2002). When rejected individuals received flattering rather than critical feedback, the previously observed differences in aggression vanished.

Each of the studies outlined above contained a measure of mood. Only one study demonstrated a mood effect, and this effect was not indicative of emotional distress. The sole effect found was a downward shift in positive emotion without a corresponding shift in negative emotion. Statistical analysis revealed that this mood effect was not a mediator of the link between rejection and aggression.

Thus, rejection does not lead to wild or undirected aggression. Rather, rejected individuals are apt to respond aggressively to provocation. Nevertheless, these data support a causal link from rejection to aggression. Both accepted and rejected participants received negative, even insulting feedback regarding the quality of their essays. Despite this, only rejected individuals responded aggressively to this provocation. Further, the change in behavior was hardly trivial. Rejected individuals showed a marked increase in aggression, with statistical analysis indicating that observed effects were well in excess of the criteria set for a large effect. These data clearly point toward the existence of a powerful link between social rejection and aggression.

SOCIAL REJECTION AND EMOTIONAL NUMBING

Initial studies provided solid evidence for a causal relationship between rejection and aggression. The mechanism driving this relationship remained unclear, however. Emotional distress was perhaps the most plausible mediator. Anxiety has been shown to play a role in both social rejection (Baumeister & Tice, 1990) and ostracism (Williams et al., 2000). Emotional distress, however, was not present in these experiments by Twenge et al. (2001). Only one significant mood effect was found, and even this effect deviated from expectations. The sole

difference in mood between rejected and accepted participants was a slight decrease in positive affect. Rejected participants did not show any increase in negative affect; rather, they showed a flattening of affect, in particular a decrease in positive affect. This mood difference did not constitute a mediator of the link between rejection and aggression. It did, however, point toward a new line of thinking. It was possible that rejection would lead to emotional numbing rather than causing emotional distress. The flattening of affect seen in the previous set of studies would be consistent with a state of *cognitive deconstruction*. This state is characterized by an absence of emotion, an altered sense of time, a fixation on the present, a lack of meaningful thought, and a general sense of lethargy (Baumeister, 1990).

In order to test the hypothesis that social exclusion would lead individuals to enter a deconstructed state, Twenge, Catanese, and Baumeister (2003) conducted a series of studies to look for links between social rejection and various aspects of cognitive deconstruction. The first study provided a direct test of the effect of social rejection on time perception and emotion. Social rejection was again manipulated using the group rejection paradigm, in which rejected participants were told that none of the participants with whom they had previously gotten acquainted wished to continue working with them. After this manipulation, participants were presented with several measures. The first was a measure of time perception that asked participants to estimate the duration for which a stopwatch had been active. Participants were asked to make their estimates without actively counting the time as it passed.

Participants then completed two measures of mood. The first was a one-item scale designed to test for flattening of positive affect. The second required participants to rate the degree to which 41 adjectives described their mood. Participants were also given a future time orientation scale. In addition to the explicit measure of time orientation, participants were asked to make a hypothetical choice between two jobs. The first had a higher starting salary but no opportunity for advancement. The second had a lower starting salary but offered the possibility to eventually advance beyond the pay of the first job. A tendency to favor immediate over delayed gratification is indicative of a focus on the present. This focus is a component of cognitive deconstruction (Baumeister, 1990).

The results of this study provided evidence in support of rejection leading to a state of cognitive deconstruction. As predicted, rejected participants demonstrated a slowing of subjective time. When estimating

the duration of what was actually a 40-second time period, rejected participants provided an average estimate of 63.71 seconds, compared to a fairly accurate 42.50 seconds as estimated by accepted participants. Rejected participants also showed a significant present orientation, being more likely to agree with scale items such as, "I can only think about the present," and, "I find it difficult to think about the future," than participants in the accepted condition. An effect was also seen on participants' willingness to delay gratification. Although the majority of participants in both the accepted and rejected conditions chose the job offering delayed benefits, significantly fewer rejected participants (73%) chose this job, compared to 94% of accepted participants.

Participants had also completed two measures of mood: a one-item holistic measure ranging from 1 (negative) to 7 (positive) and a comprehensive scale asking participants to rate the degree to which 41 adjectives described their current mood. There were no significant differences for positive or negative mood on the 41-item scale, and only a small difference on the holistic scale, with rejected participants scoring slightly lower than accepted participants. Neither scale demonstrated emotional distress.

Although the results of the first study were in line with the idea that social rejection leads to emotional numbness, a more direct test of the effect of rejection on mood could make a stronger case for emotional numbing. A follow-up study (Twenge et al., 2003) was conducted to test the effects of social rejection on emotion using an implicit measure. Rejection was manipulated using the personality feedback method previously discussed. In this study only the Future Alone and No Feedback conditions were used.

Participants were then asked to complete a computer task. Participants were seated at a computer displaying a row of X's on the screen. They were told that the program would occasionally flash a word on the screen and then immediately return to the row of X's. In reality, the screen merely went blank and then returned. Participants were asked after each trial to indicate which of five word choices corresponded to the word they had seen on the screen. Each set of choices contained one emotion word and four neutral words. There were 18 trials in all, with 9 trials presenting a negative word as a possible choice and 9 presenting a positive word. This format allowed two competing hypotheses to be tested. Although previous studies had shown no emotional distress among rejected participants, it was possible that this was due to the method of measurement. It was possible that social rejection led to implicit but not explicit emotional distress. If rejection did create

implicit emotional distress then participants in the Future Alone condition ought to be more likely to select the negative emotion words when given the opportunity. If, however, social rejection led to emotional numbness, then rejected participants should be less likely than accepted participants to choose words of either positive or negative emotional valence.

The results of the study supported the latter hypothesis. Participants in the Future Alone condition selected far fewer emotion words than did participants in the No Feedback condition. This result bolstered the case for rejection leading to emotional numbness. Being told they would lead lonely lives not only failed to elicit emotional distress among participants, it led to a decrease in their likelihood to select emotionally laden words of either positive or negative valence.

This numbing could be seen as complicating rather than explaining the link between rejection and aggression. Based on intuition, one might predict that an emotionally numb individual would exhibit less rather than more aggressive behaviors. Consistent with this, previous studies showed increases in lethargy among rejected participants (Twenge et al., 2003). A further consequence of emotional numbness, however, shed light on the manner in which it could lead otherwise lethargic participants to aggress.

Work by DeWall and Baumeister (2006) has shown that social rejection leads to both an emotional and a physical numbing. Participants exposed to social rejection tolerated pain longer and indicated first sensing tactile stimulation at a greater stimulus intensity than did participants exposed to social acceptance. For detailed coverage of these findings, please refer to the chapter by DeWall, this volume.

REJECTION AND SELF-REGULATION

Although the emotional numbness and decrease in empathy experienced by rejected individuals play an important role in the link between social rejection and aggression, these effects do not constitute a complete explanation of why rejection leads to aggression. The diminished prosocial motivations experienced by those lacking in empathy can open the door to aggressive behavior, but having less of a desire to do good and having more of a desire to do harm are not necessarily equivalent. A loss of empathy, paired with the numbing effects of rejection, could lead individuals to shy away from those who had rejected them rather

than lashing out. Emotional numbness, however, is not the only consequence of social rejection.

In addition to its emotional consequences, social rejection has adverse effects on a variety of cognitive abilities. Social rejection has been shown to decrease intelligent (Baumeister, Twenge, & Nuss, 2002) and meaningful thought (Twenge et al., 2002). But another category of cognitive response is self-regulation. Studies have demonstrated that self-regulation depends upon a finite resource and that acts of self-regulation can impair subsequent attempts to exercise self-control (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Self-regulation has been shown to be an important tool for controlling aggressive impulses. Stucke and Baumeister (2006) found that targets whose ability to self-regulate had been depleted were more likely to respond aggressively to insulting provocation. DeWall, Baumeister, Stillman, and Galliot (2007) found that diminished self-regulatory resources led to an increase in aggression only in response to provocation; unprovoked participants showed no increase in aggressive behavior. Recall that in earlier work (Twenge et al., 2002) rejected individuals became more aggressive only when the target of their aggression was perceived as having insulted or provoked them. This aggression could have been the result of the diminished ability of rejected participants to regulate their aggressive urges.

Given the importance of self-regulation for preventing aggressive behaviors, and the aggression already demonstrated by rejected individuals, Baumeister, DeWall, Ciarocco, and Twenge (2005) hypothesized that social rejection would decrease the ability of the victim to engage in acts of willful self-control. To test this hypothesis, participants were exposed to social rejection using the personality feedback manipulation discussed previously. All participants were then seated at a table with 20 small paper cups. Each cup contained 1 oz. of a Kool-Aid, vinegar, and water solution. Participants were told (correctly) that, despite the beverage's aversive taste, it was actually very healthy. Further, participants were told they would receive a nickel for each ounce consumed. Thus, they were encouraged to drink as much as they could, but the awful taste meant that self-control was needed to increase drinking. The number of ounces consumed served as a measure of self-regulation.

The results of this experiment supported the hypothesis that rejection would lead to decrements in self-regulation. Participants told they would have a lonely future drank much less of the aversive beverage, consuming a little over 2 ounces compared to the 8 ounces consumed by those given Future Belonging or Future Misfortune feedback. Individuals given

Future Alone feedback seemed less able to persist through the beverage's aversive taste in order to receive the promised rewards, providing clear evidence of a decrease in self-regulatory ability.

The next study (Baumeister et al., 2005) provided converging evidence by employing both a new rejection manipulation and a new measure of self-control. In this study participants received a more immediate form of rejection via the group task manipulation discussed earlier. Participants met in a group, got acquainted with one another, and then by random assignment were informed that all or none of the other participants had expressed an interest in working with them in the next phase of the experiment. Following this manipulation, participants were presented with a bowl of 35 small chocolate chip cookies and told that they would be participating in a taste testing exercise. Participants were told to eat as many cookies as they deemed necessary to make an accurate assessment of the taste. Previous work has shown that most students in populations sampled consider eating cookies to be an unhealthy action that should be regulated (Tice, Bratslavsky, & Baumeister, 2001). Consuming a greater number of cookies would constitute a failure of one's ability to control the impulse to consume an unhealthy snack.

The results of this study were consistent with the hypothesis that social rejection would lead to diminished self-regulation. Participants who were told that no one wished to work with them ate twice as many cookies as those told that everyone wanted to work with them. As in previous studies, mood did not mediate this effect.

A third experiment (Baumeister et al., 2005) tested the ability of rejected participants to persist on a frustrating task. Rejection was manipulated using the personality feedback method. Participants were then given a task requiring them to trace geometric figures without lifting their pencil from the paper (Baumeister et al., 1998). Participants were told that his task was closely related to spatial intelligence. Although the examples of the task demonstrated by the experimenter were solvable, the tasks given to participants were not. Participants were told that they could give up on the task at any time by ringing a bell. The amount of time participants were willing to persist on this frustrating task served as a measure of self-regulation.

The results of this study offered further support for the hypothesis that social rejection leads to impaired self-regulation. Participants given Future Alone feedback gave up significantly faster than those in the other conditions.

An additional study (Baumeister et al., 2005) measured the effects of social rejection on still another measure of self-regulation. The same personality feedback method was used to manipulate social rejection, but the measure of self-regulation was changed to a dichotic listening task. Participants heard two different speeches in each ear, and were told to write down all the words containing “m” or “p” that they heard in the left ear while ignoring everything they heard in the right ear.

This study offered further support for the hypothesis that rejection would impair self-regulation. Participants who received Future Alone feedback performed far worse on this task, correctly recording significantly fewer target words than participants in other conditions.

These results clearly demonstrate that social rejection has a detrimental effect on self-regulation, but they do not explain why this is so and, indeed, the decrement in self-regulation would appear to be counterproductive for rejected individuals. Gaining social acceptance often involves regulating impulses in order to create positive impressions on others (Vohs, Baumeister, & Ciarocco, 2005). Rejected individuals should therefore show an increase in self-regulatory effort if they wish to create new connections or prevent further rejection. The observed drop in self-regulation therefore seems maladaptive. The explanation for this finding lies in rejection’s effect on self-awareness.

Self-awareness is an important prerequisite of conscious self-control (Carver & Scheier, 1981). Twenge et al. (2002) found that, when given the option, participants who had experienced rejection earlier in the study were more likely to sit facing away from rather than toward a mirror. Having participants face a mirror is a common technique for inducing self-awareness (Carver & Scheier, 1981), so participants’ unwillingness to do so following rejection provides evidence of a desire to avoid self-awareness. A drop in self-awareness is part of the suite of effects that comprises a state of cognitive deconstruction. Just as emotional numbness protects rejected individuals from the emotional distress of rejection, a drop in self-awareness would shield against awareness of personal flaws and shortcoming that could have led to that rejection. The benefit of this self-ignorance is that further distress over one’s inadequacies is mitigated. Unfortunately, this protection carries the cost of decreased self-regulation. Because self-regulation is important for positive self-presentation (Vohs et al., 2005), this drop in self-awareness could ironically lead to further rejection.

Two additional studies (Baumeister et al., 2005) were conducted to test potential moderators of this self-regulatory decrement. Both studies

again used the dichotic listening task and rejection manipulation but made modifications to the design that allowed additional factors to be tested. In the first of these studies, participants were told that they would receive \$20 if they correctly identified 100% of the target words. When this monetary incentive was introduced, the differences in performance between accepted and rejected participants seen in the previous study disappeared.

In the next study (Baumeister et al., 2005), self-awareness was directly manipulated by having participants complete the dichotic listening task facing either toward or away from a mirror. Rejected participants facing the mirror performed no worse than those given acceptance feedback. Participants not facing the mirror, however, showed the same decrements in self-regulation as were observed in previous studies.

These data suggest that social rejection does not decrease the absolute ability of victims to self-regulate but rather decreases their willingness to exert the effort necessary to do so. Increased lethargy, another aspect of cognitive deconstruction, is consistent with this decrease in self-regulatory effort. Twenge et al. (2002) found that social rejection led participants to give shorter and less detailed explanations of proverbs. Because fully explaining the proverbs would require an effortful response, this shortening and simplification of responses is evidence of increased lethargy amongst rejected participants. This lethargy is not binding, however. When given sufficient incentive, rejected participants were able to match the self-regulatory performance of participants in other conditions. Inducing self-awareness also allowed rejected individuals to self-regulate as effectively as other participants. In the absence of such stimulation, however, rejected individuals showed a decrement in self-regulatory ability that constitutes an important contribution to explaining the link between rejection and aggression.

HOSTILE COGNITIVE BIAS

Given the ability of social rejection to produce hostile behavior, it is reasonable to assume that rejection could have a similar effect on cognition. It is possible that, in addition to being more prone to engage in aggressive acts, rejected individuals are more likely to interpret the behaviors of others as provocation worthy of an aggressive response. A recent line of work has examined the role of hostile cognition as a mediator of the aggression enacted by victims of social rejection.

DeWall, Twenge, Gitter, and Baumeister (in press) tested the hypothesis that rejected individuals would demonstrate a hostile cognitive bias. This bias involves an increased perception of hostility directed toward oneself and the perception that hostility and aggression are common in social interactions (Bushman & Anderson, 2002). Such a bias would make rejected individuals more likely to perceive others' neutral or ambiguous behavior as acts of hostility. A hostile cognitive bias, coupled with decreased empathy and a drop in effortful self-regulation, would create a perfect climate for aggressive behavior.

To test this hypothesis, participants were told that they would be engaging in a dyadic interaction with a same-sex partner. Rejection was manipulated using the video exchange method. Participants viewed a video purportedly made by their partner in the study and then created a response video. After their partner had supposedly viewed the response video, participants were randomly given one of three responses from their partner. Participants in the control condition were told that their partner would be unable to continue because of an appointment he or she had forgotten, participants in the acceptance condition were told that their partner had enjoyed their video and was looking forward to working with them further, and participants in the rejection condition were told that their partner had refused to continue working with them after viewing their video.

Following this, participants completed either a word similarity task or a fragment completion task. In the word similarity task, participants were presented with pairs of words, each containing one clearly hostile and one ambiguous term. If rejection leads to a hostile cognitive bias, rejected participants should perceive hostility and aggression as more common and therefore should judge hostile and ambiguous words as more similar to one another. The fragment completion presented participants with a series of word fragments. Each fragment could be completed in such a way that it was either neutral or hostile in valence. Participants with a hostile cognitive bias should have greater access to hostile cognition and thus should be more likely to create hostile words based on the fragments.

The results of these studies supported the existence of hostile cognitive bias amongst rejected participants. Participants in the rejection condition rated hostile and ambiguous words as more similar and completed a greater number of word fragments with hostile words, as compared to participants in the control conditions.

The next study (DeWall et al., in press) aimed to establish a direct link between hostile cognitive bias and increased aggression. This study

employed the bogus personality feedback discussed previously as a rejection manipulation. To measure hostile cognitive bias, participants were asked to read an essay in which the author recounted engaging in behaviors that could be perceived as either assertive or hostile. Participants were then asked to indicate the extent to which they believed the author possessed various traits related to hostility. Participants' aggression was then measured via the job evaluation task employed in several previous studies.

Participants given Future Alone feedback rated the author of the essay as significantly more hostile, thus replicating the hostile cognitive bias seen in the previous study. Further, these participants gave significantly worse ratings of the author than participants in other conditions, indicating an increase in aggressive behavior. A regression analysis revealed a significant relationship between perception of hostility in the author's essay and evaluations of the author as a job candidate. Greater perceptions of hostility were related to lower evaluations.

An additional study (DeWall et al., in press) sought to generate additional evidence using the noise-blast measure of aggression in place of the job evaluation. Participants receiving Future Alone feedback showed both an increase in hostile cognition and an increase in aggressive noise blasts. A mediation analysis revealed that hostile cognition partially mediated the effect of social rejection on aggression. That partial rather than full mediation was found is unsurprising given that various other factors have already been identified as contributing to the link between social rejection and aggression.

Although the studies discussed above demonstrated a link between social rejection, hostile cognition, and aggression, alternative explanations remained unaddressed. It is possible that receiving Future Alone feedback merely constituted undesirable feedback relative to receiving Future Belonging feedback or no feedback at all. To demonstrate that the hostile cognitive bias arose as a result of receiving socially undesirable rather than generally undesirable feedback, an additional study (DeWall et al., in press) was conducted using the interpersonal versus individual failure manipulation developed by Carvallo and Gabriel (2005). Following this manipulation, participants read the ambiguous essay employed previously and then rated the extent to which the author possessed a variety of hostile traits. Finally, participants evaluated the author's suitability for a competitive research assistant position.

Participants who were led to expect interpersonal failure perceived the author as more hostile than participants whose feedback led them to

expect individual failure or participants who received no feedback at all. Further, interpersonal failure participants gave significantly lower evaluations of the author than participants in the other conditions. Participants in the individual failure and no feedback conditions did not differ in terms of either hostile cognition or author evaluation.

The aggressive behaviors of rejected participants in the previous studies were directed against an individual perceived to be hostile. In order to determine whether the aggression elicited by the hostile cognitive bias was limited to individuals perceived to be hostile, an additional study (DeWall et al., in press) was conducted in which participants would have the chance to aggress against a novel target. Social exclusion was then manipulated using the method developed by Carvallo and Gabriel (2005). Participants then read and evaluated the same essay used in the previous study. After this, participants were told their partner had to leave the experiment unexpectedly and that they would be completing the second part of the study with a new partner who was making up credit for a missed experiment. Aggression was then measured by having participants complete the noise blast task.

As in the previous study, participants made to expect interpersonal failure perceived the author as more hostile than participants in the other conditions. Interpersonal failure participants were also more aggressive when selecting noise blasts during the reaction time task. These data indicate that the hostile cognitive bias elicited by social rejection leads to a general rather than specific increase in aggression. Although the supposed partner in the reaction time game was a novel individual who had no opportunity to display hostility, participants made to expect interpersonal failure still responded with increased aggression. It can therefore be concluded that social rejection leads to a hostile cognitive bias and that this bias in turn fuels a general increase in aggression on the part of the rejected individual.

REJECTION AND MEANINGFULNESS

Twenge et al. (2002) found that social rejection led to a decrease in meaningful thought among participants, as well as an increased likelihood to endorse the statement, "Life is meaningless." Williams (2002) has also suggested that social rejection ought to be associated with a perception of decreased meaning in life. Given the fundamental nature of the need to belong, it makes sense that defining life as meaningful

would be at least in part contingent on the fulfillment of social needs. A recent line of work has looked explicitly at the effect of social rejection on the perception of meaning in life. Perceiving meaning in life has been shown to have an inverse relationship with hostility, aggression, and antisocial attitude (Mascaro, Morey, & Rosen, 2004). As such, any decrease in meaning associated with social rejection would constitute an important feature of the explanation of the aggressive behavior of rejected individuals.

The link between social rejection and a decrease in perceived meaning in life was tested by Stillman et al. (2008). In the first study, participants played Cyberball as a manipulation of rejection. By random assignment, the computer passed the ball evenly, passed the ball amongst the three computer players and excluded the participant, or passed the ball amongst the participant and two of the computer players while excluding the third computer player. After completing the game of Cyberball, participants were given the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988) to test for mood effects, and the Kunzendorf No Meaning Scale (KNMS; Kunzendorf & McGuire, 1994; Kunzendorf, Moran, & Gray, 1995–1996) to assess effects on perceived meaning in life. The KNMS asks participants to respond to items such as “Life has no meaning or purpose” and “All strivings are futile and absurd.”

Consistent with the hypothesis, participants who were excluded from the game of Cyberball perceived less meaning in life than did those participants in the two other conditions. Two points are important to note. First, this drop in meaning was seen only among participants who were themselves excluded. Witnessing the exclusion of another did not affect perceptions of meaning. Second, all participants—including those who were excluded—gave responses above the mean on the KNMS. Excluded participants did not perceive life as meaningless but simply *less* meaningful than nonexcluded participants. Although this small drop alone might not lead to significant consequences, it is important to remember that this was the result of a single instance of relatively impersonal rejection. Given the effect that this relatively impersonal rejection had on meaning, it is likely chronic and personal rejections could have a serious impact.

To determine whether chronic exclusion was related to a decrease in meaningfulness, a second study (Stillman et al., 2008) was conducted focusing on loneliness. Because loneliness represents a measure of the degree to which one feels chronically excluded or alone it should shed

light on any relationship between chronic exclusion and meaning. The extent to which participants were lonely was assessed using the UCLA Loneliness Scale short form (UCLS-8; Hays & DiMatteo, 1987). Participants' perception of meaning in life was again measured using the KNMS. A regression analysis was then conducted to determine what relationship existed between these factors. A significant positive relationship was found ($r = .41$), such that higher degrees of loneliness as measured by the UCLS-8 were related to perceiving life as less meaningful. These studies provided evidence for a link between social rejection and a decreased perception of meaning in life.

IMPLICATIONS AND FUTURE DIRECTIONS

The violence perpetrated on campuses across the country bears out the aggressive behavior seen by rejected participants in the lab. One of the unifying factors of these incidents of school violence is the feeling of rejection or exclusion on the part of the offenders. There are differences, however, between the aggressive behaviors seen in laboratory studies and the deadly violence seen in schools. Although an understanding of the mechanisms driving the aggressive behaviors of rejected individuals is emerging, additional work is needed to provide a full understanding of the path from social rejection to deadly aggression. Whereas the isolated incidents of rejection used in lab studies are (thankfully) insufficient to produce deadly aggression, it is possible that many such experiences suffered across the lifespan can combine to produce such behavior. This development could be fueled by a feedback loop, such that the behavioral changes elicited by rejection make rejected individuals more vulnerable to future rejection. It is not difficult to believe that the hostility and emotional numbness elicited by rejection might make securing social acceptance more difficult. Future research should examine the effects of social rejection on further attempts by rejected individuals to gain social acceptance.

SUMMARY AND CONCLUSION

Research has begun to reveal the manner in which individuals respond to social rejection. Although intuition would suggest that rejected individuals might strive to behave in cooperative and prosocial ways so as

to restore social bonds, rejection is often observed in conjunction with aggressive behavior (Coie, 1990; Newcomb, Bukowski, & Pattee, 1993; Sampson & Laub, 1993). Research has revealed that rejection exerts a causal force on aggression. Participants exposed to social rejection in the lab showed a marked increase in aggression (Twenge et al., 2002). Rejected participants showed increases in both passive aggression, by giving negative evaluations to a job candidate, and violent aggression, by delivering louder and longer noise blasts to fellow participants. These effects were substantial, with effect sizes nearly doubling the criteria for a large effect (Cohen, 1977).

Some of the mechanisms driving the link between rejection and aggression have also been discovered. Emotional distress, originally thought to be an important mediator of the link between rejection and aggression, was absent in rejected participants. Rather, rejection led to emotional numbness, lethargy, and a drop in self-awareness (Twenge et al., 2002). These effects, which collectively constitute a state of cognitive deconstruction (Baumeister, 1990), work in various ways to facilitate the aggression seen in rejected participants.

Emotional numbness decreases the ability of rejected individuals to empathize with the pain of others, causing them to respond with less sympathy to the authors of essays recounting social or physical misfortune (DeWall & Baumeister, 2006). Empathy is an important motivator of prosocial behavior (Batson, Duncan, Aekerman, Buckley, & Birch, 1981), and the decreased ability of rejected individuals to experience empathy should have consequences for their willingness to engage in such behaviors. Consistent with this, rejected participants were less likely to offer direct aid to the experimenter, donate money to charity, or volunteer their time (Twenge et al., 2007).

Self-awareness is an important prerequisite of effortful self-control (Carver & Scheier, 1981), and the reduction in self-awareness caused by social rejection contributes to decrements in self-regulatory effort. Rejected participants were less able to regulate the consumption of unhealthy snacks, consumed fewer glasses of an aversive beverage despite being paid for each glass consumed, gave up more quickly when confronted with an unsolvable puzzle, and were less able to regulate their attention in a dichotic listening task (Baumeister et al., 2005).

The lethargy caused by social rejection has also been shown to contribute to decrements in self-regulations, as rejected participants given monetary incentives were not able to self-regulate as effectively as those not exposed to rejection (Baumeister et al., 2005). The lethargy caused

by social rejection creates impediments to self-regulation that must be addressed via external motivation in order to be removed. Self-regulation is an important tool for controlling aggressive urges (DeWall et al., 2005; Stucke & Baumeister, 2006) whose impairment would facilitate aggressive acts on the part of rejected individuals.

Rejected individuals are also more likely to perceive hostility in the ambiguous actions of others. Rejected participants were more likely to perceive hostile and ambiguous words as being similar to one another, to complete word fragments with hostile words, and to rate the ambiguous actions of a character in an essay as hostile (DeWall et al., in press). Rejected participants were also more likely to deliver aggressive noise blasts or provide negative job evaluations to both the author of the essay and to novel partners with whom no previous interaction had occurred. Statistical analysis revealed that the increased aggression on the part of rejected participants was partially mediated by the extent to which they perceived hostility in the ambiguous essay.

Rejection is also related to the perception of meaning in life. Rejected participants perceived life as significantly less meaningful than other participants, and participants who were chronically lonely also perceived life as less meaningful (Stillman et al., 2008). Perceiving life as less meaningful has consequences for aggression, as perceiving life as meaningful is inversely related to aggressive and antisocial behavior (Mascaro et al., 2004).

Social rejection, which constitutes a threat to the fundamental human need to belong (Baumeister & Leary, 1995), has adverse effects on empathy, self-regulation, cognition, and meaning. These effects combine to facilitate increased aggression on the part of rejected individuals. This aggression can be directed against the perpetrators of the rejection, against novel targets who offer provocation, or even against novel targets with whom no previous interaction has occurred. The varied and often severe effects of social rejection speak to the importance of social bonds to the proper functioning of the human psyche.

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12

Is Ostracism Worse Than Bullying?

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The title of this chapter, for various reasons, cannot be answered definitively. First, it depends on how full-blown the ostracism is, who is doing it, and for how long. It also depends of course on how physically damaging the bullying is. People have died from both; others have been able to recover fairly quickly. As with most questions, the answer is, “It depends.” So, the reader might ask, why ask it then? Because asking this question forces researchers, theorists, and practitioners to step away from the current popular way of thinking that bullying—physical and verbal intimidation—is, without a doubt, the worst form of interpersonally aversive behavior.

In this chapter, we will focus more on the impact of ostracism, because others in this book focus more on bullying. Make no mistake about what I am saying: Bullying is bad. Bullying is corrosive and can cause pain and suffering well beyond the time it is experienced—if not for the physical pain that is suffered during the bullying episodes, for the social pain of humiliation, embarrassment, and betrayal that lingers for years after (Chen, Williams, Fitness, & Newton, 2008). But no matter how bad it is, there is one aversive feature *absent* in bullying that is the

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essential ingredient of ostracism: the target's¹ feeling that she or he does not matter. The bullied individual can take some sort of satisfaction in knowing that he or she is important enough for someone or some group to go out of its way to bully. Even the target knows that bullying takes time and energy, and that the bullies risk punishment by others. Targets know they are the object of the bully's attention.

Not so for the ostracized. Ostracism makes a person feel invisible, nonexistent, and totally insignificant. Those who use it need not acknowledge they are using it; they can deny it easily, and what proof is there of ignoring? It's essentially a nonbehavior, leaving no bruises or harmful words for which to apologize. Instead of being the target of others' attention, ostracized individuals are the targets of inattention.

William James (1897) wrote:

If no one turned round when we entered, answered when we spoke, or minded what we did, but if every person we met "cut us dead," and acted as if we were non-existing things, *a kind of rage and impotent despair would ere long well up in us, from which the cruelest bodily tortures would be a relief; for these would make us feel that, however bad might be our plight, we had not sunk to such a depth as to be unworthy of attention at all.* (James, 1897, pp. 293–294, italics added)

James says it is worse to be unworthy of attention than it is to be subjected to physical torture. The feeling that one is invisible to others, inconsequential, unimportant, unworthy of attention, strikes at the very core of being, of existing, of mattering.

Before reviewing the research on ostracism, and the available studies that attempt to compare ostracism to bullying, we need to settle on some working definitions. For this chapter, ostracism is being ignored and excluded. Both are necessary. It is not sufficient to be excluded, because one can be ridiculed or physically punished simultaneously. It is also not rejection. Rejection is a specific act of turning someone down, of saying, "No, I don't want to work/date/marry/play with you." It does not necessarily mean being ignored or being excluded in other domains. In a village, a suitor is rejected by the one he loves, but she continues to talk, engage in business, and otherwise include and attend to him. Bullying, as it is used in the literature, can mean almost anything aversive. Some would envelope ostracism within the rubric of bullying. To us, this is too broad a conception and renders comparisons meaningless. For the sake of this chapter, we refer to bullying as unauthorized acts of verbal and physical intimidation.

A REVIEW OF OSTRACISM'S IMPACT

The Immediate Detection of Ostracism: Reflexive Pain

We and our collaborators have used several different methods to study ostracism and related phenomena (Williams, 2007, 2009). One standard laboratory procedure places three people together in a room; as they wait for the start of an experiment, one of the participants tosses a ball to one of the others, and an apparently spontaneous ball-tossing game ensues. Two of these three individuals, however, are confederates who follow one of two scripts—one including the actual participant in the ball-tossing, and another calling for the confederates to ostracize the participant by not tossing the ball to that person. Experiencing ostracism for a mere five minutes in this setting has a major impact on participants, routinely producing negative feelings, sadness, and anger. In addition, self-reports of those who are ostracized using this procedure indicate that their sense of belonging, self-esteem, control, and “meaningful existence” is in each case significantly lower than that reported by participants who were included in the ball-tossing. Comparisons with a control group whose participants do not engage in the ball-tossing make it clear that being included does not elevate these feelings, but rather that being ostracized thwarts them.

We have used another procedure known as Cyberball to create an online version of this paradigm; in Cyberball participants are led to believe that a ball-tossing game is a means by which they are exercising their mental visualization abilities (Williams & Jarvis, 2006). The experimental effects generated by the Cyberball procedure are just as strong as those produced in the face-to-face setting, even though these participants do not see the other participants and neither know nor expect to meet them. In actuality, these other so-called participants are nothing more than cartoonish figures on the computer screen who are programmed either to include or to ostracize. How can such seemingly minimal experiences of ostracism be so powerful?

When we feel that we do not belong, we are likely to suffer psychologically and physically (Baumeister & Leary, 1995). When we fail to maintain self-esteem, we become less likely to feel self-confident and effective (Steele, 1988; Tesser, 1988). When we feel a sense of control over our environment, even if that control is illusory, we will persevere and be ready for challenges (Bandura, 1997; Seligman, 1975). When we fail to be recognized, we become less capable of fighting feelings of existential

angst and purposelessness (Solomon, Greenberg, & Pyszczynski, 1991). Because these needs work to foster the well-being of individuals and groups, they most likely are rooted in our evolution as a species. Ostracism threatens all of these needs.

On the basis of our research, we think that people are equipped with a system designed to react when these needs are threatened. This system detects ostracism at the earliest possible moment and in its crudest form, and it sends a signal when ostracism is recognized. The signal, we believe, is pain. If someone accidentally gets burned as the flame is passed from one worshipper's candle to the next in a Christmas candlelight service, the resulting pain is as intense as that experienced by someone who is burned intentionally by another person in an act of hostile aggression. Similarly, our research suggests that the initial reflexive response to ostracism—from friend or enemy, from a computer or another human being, intentional or not—is pain.

We have used the Cyberball procedure to manipulate players' perceptions of themselves as either ingroup or outgroup members. For example, the two other players do or do not smoke, did or did not go to a private school, have the same or different political beliefs, use Macs or PCs, and so forth. Such manipulations have no effect at all on ostracized participants' reports of heightened levels of sadness or anger, or on decreased levels of belonging, self-esteem, control, or meaningful existence (e.g., Williams, 2007; Williams, Cheung, & Choi, 2000; Williams et al., 2002). In fact, even when participants are ostracized by an outgroup that is genuinely despised (such as the Ku Klux Klan), the negative impact on their feelings is just as strong as when the ostracism comes from members of their ingroup (Gonsalkorale & Williams, 2007)!

Another of the studies in this research program showed that whether the other players were students (like the participants themselves) or merely computer-generated players was of little consequence. Ostracism by anyone (or any *thing*) hurt—although participants were somehow angrier when ostracized by the computer-generated players. As one participant put it, "People let you down, computers aren't supposed to" (Zadro, Richardson, & Williams, 2004). In yet another attempt to test the limits of the impact of ostracism, we went so far as to charge participants money for each ball thrown their way, thus stacking the deck against being included. The ostracized participants in this study felt just as badly as when the ostracism occurred in a game in which no

monetary value was attached to the ball tosses (van Beest & Williams, 2006).

Personality variables seem to have little or no impact on how ostracism is experienced. Regardless of whether an individual is high or low in social anxiety, secure attachment, self-esteem, loneliness, individualism, or agreeableness—the initial level of pain is the same. When measures of these individual differences are administered in connection with the Cyberball procedure, reflexive self-reports of distress, negative affect, or need threat yield the usual effects of ostracism and show no indications of having been moderated (Oaten, Williams, Jones, & Zadro, 2008; Zadro, Boland, & Richardson, 2006).

An affective neuroscience approach has yielded some especially intriguing insights into the nature of the response to ostracism. In one of our fMRI studies (Eisenberger, Lieberman, & Williams, 2003), the participants played Cyberball as usual, but in a very unique environment—while lying in a magnetic resonance image scanner. We learned, first of all, that the dorsal anterior cingulate cortex is activated during Cyberball ostracism; this is the same region that is activated when people experience physical pain. A second key finding was that there was a strong correlation between the level of activation and retrospective self-reports of distress. Finally, when a participant was told at the beginning of the experiment that his or her computer was not yet connected to those of the other two players—in other words, when the person could not expect to be included in the computer-based ball-tossing—the heightened level of activity in the dorsal anterior cingulate cortex was present even then!

These studies, as well as others in progress, are suggesting that the individual's initial response to the "pain" of ostracism is rudimentary and sometimes illogical, sending a simple message that says: "OUCH—I need to stop what I'm doing and pay attention here because this might be important." Detecting ostracism that turns out not to be really happening probably will not be a costly error, but the consequences of failing to identify ostracism that is real could be devastating. For most social animals, ostracism means death (Gruter & Masters, 1986). The presence of a mechanism for early detection insures that the person will attend to the situation appropriately and creates an opportunity to assess its meaning and significance. In turn, the individual has time to fortify needs that are threatened. This could be accomplished in several ways—such as by following some course of action intended to restore the ostracized person's inclusion in the group, or perhaps by way of efforts to seek attention, regain control, or even to lash out at others.

The Reflective Stage: Paths to Recovery of Thwarted Needs

If there is time to assess and reflect on the ostracism episode, then personality and cognitive processes operating within the ostracized individual become part of the picture. Someone's traits and predispositions and the nature of the attributions and appraisals occurring in the wake of the ostracism all can affect the way in which the person reacts to the experience. Such factors might, for example, determine how long an episode remains distressing or dictate the choice of thoughts or actions used in the effort to fortify thwarted needs. It is here that logic, or at least psychology, begins to direct the individual's response.

In one study (Zadro et al., 2006), participants with either high or normal levels of social anxiety played Cyberball. Immediately afterward, negative affect and need satisfaction were evaluated. Those who had been ostracized showed more sadness and anger and less need satisfaction, but the level of social anxiety did not matter. When negative affect and need satisfaction were assessed a second time 45 minutes later, however, social anxiety did play a significant role in the pattern that emerged: Those with normal levels of social anxiety were back to a state of positive affect and a high level of need satisfaction (as high, in fact, as that of participants who had not been ostracized). Those high in social anxiety, on the other hand, lagged behind, having covered only half of the distance to full recovery.

A study that examined the ability to self-regulate found a similar pattern of results (Oaten et al., 2008). Immediately after experiencing ostracism, all participants demonstrated a depressed ability to self-regulate by eating more junk food (Study 1) and drinking less unappealing but healthy liquid (Study 2). Forty-five minutes later, however, only those with normal levels of social anxiety were self-regulating; those who were high in social anxiety were still demonstrating impaired self-regulation.

After the ostracized person has had an opportunity to engage in some cognitive deliberation, individual differences (e.g., social anxiety) and situational factors (e.g., ostracism by ingroup or outgroup) also appear to play a role in the individual's response to the ostracism. As we review below, there are a number of studies that offer evidence for at least two different and divergent response paths following ostracism, both of which involve actions prompted by needs that are thwarted by social exclusion. One course involves actions that appear to be aimed at restoring one's sense of belonging or recovering lost self-esteem, while

the alternative attempts to restore the person's sense of control and their existential worthiness.

The Path Toward Increasing Social Inclusion

Belonging and self-esteem (at least the sort that is bolstered by social acceptance) are probably best fortified if the ostracized individual becomes more attentive to social information and more active in behavior designed to elicit favorable reactions from others. Numerous studies provide support for this contention.

Gardner, Pickett, and Brewer (2000) have shown that socially excluded individuals attend to and remember more social information than do individuals who are not ostracized. Furthermore, those who are ostracized are more likely to detect social/emotional inconsistencies (Pickett, Gardner, & Knowles, 2004). Another interesting finding is that those who are ostracized are more likely to mimic (unconsciously) a new person in a later encounter, particularly if that person is known to be an ingroup member (Lakin & Chartrand, 2005). We also know that ostracized individuals are more likely to conform (Williams et al., 2000), comply (Carter-Sowell, Williams, & Chen, 2008), work harder for the group (females only, Williams & Sommer, 1997), cooperate (Ouwerkerk, Kerr, van Lange, & Galucci, 2005), and express liking for new and even unusual groups (Wheaton, 2003). In other words, people who are ostracized are socially susceptible in a variety of ways.

In short, these and numerous other studies send a clear basic message: after they are ostracized, people will pay more attention to others and will try to ingratiate themselves into their favor. Such behaviors would serve to enhance one's sense of belonging and self-esteem.

The Path Toward Reclaiming Control and Recognition

On the other hand, there is also a substantial body of research showing behavioral reactions to ostracism that would seemed to be aimed at anything *but* improving enhancing one's chances of achieving social inclusion. Instead, these studies have found that ostracized individuals are less helpful (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), and more aggressive toward others—not only toward those who had engaged in the ostracism but also to similar or even naïve others (Gaertner & Iuzzini, 2005; Twenge, Baumeister, Tice, & Stucke, 2001; Warburton, Williams, & Cairns, 2006).

It is interesting to speculate about the purposes that might be served by antisocial behaviors that occur in response to ostracism. Within the larger context of the social system, perhaps this infrequent but noticeable response serves to provide the balance necessary to prevent ostracism from being used excessively or indiscriminately. But what does the individual gain from lashing out after being the target of ostracism? Our work suggests that antisocial actions serve two functions.

First of all, as Tedeschi (2001) has pointed out, aggression can be a way of reclaiming control over one's social environment. The logic that follows from this assertion would suggest that if ostracism thwarts a person's sense of control, then responding aggressively would work toward restoring that control. In one study (Warburton et al., 2004) that used our standard manipulation (i.e., ostracism versus inclusion), participants who had just completed a face-to-face ball-tossing game were forced to listen to 10 loud blasts of aversive noise. Half of the participants were allowed to control the onset of this aversive noise, whereas the other participants could not control it. When delivering hot sauce to a naïve participant who was known not to like hot sauce (and who had to eat the entire amount) was used as a measure of aggression, only those participants who had been ostracized *and* deprived control over the onset of noise blasts showed significant amounts of aggression—in fact, five times as much as other participants! Those who had been ostracized but able to regain control over the noise (albeit a nonsocial form of control) were no more aggressive than the participants who had been included.

With the other studies showing a direct link between ostracism and aggression, it is informative to examine the specific techniques used to manipulate social exclusion. Two different paradigms have been used to demonstrate this connection; the first of these is the “life alone” paradigm, in which participants receive a prognosis from a psychologist indicating that they will live their lives alone, without friends or meaningful relationships. This is obviously a completely different type of social exclusion, contrasting dramatically with the short-term type of ostracism that takes place in Cyberball or in face-to-face ball-tossing. If the “life alone” participants believe this feedback, then they are left to conclude that their fate is inevitable, and that they have no ability to change that prognosis. It should not be surprising, then, that someone left in such a psychological predicament might react with aggression in an effort to reassert the control that seemingly has disappeared.

In the other of these two paradigms, participants begin by taking part in a 5–10 minute conversation designed to encourage them to get acquainted with one another. This becomes a pleasant and comfortable encounter as the people discuss their favorite movies, foods, and hobbies. Then, the participants are separated and asked to pick someone from the group with whom they would like to work on a subsequent task. After indicating their choices, the participants receive (fabricated) feedback whereby each person learns either that everyone has selected him or her, or that no one at all has done so.

Why, then, should this situation threaten one's sense of control? We propose that here a different type of control is thwarted—the control that one feels when that person is able to predict the reactions of others. If these conversations have truly been as pleasant as they generally appear to be, then it is reasonable to assume that most of the participants probably felt that they were making favorable impressions on the others present. Leary, Tambor, Terdal, and Downs (1995) has coined the term *sociometer* to refer to the mental gauge we all use to assess how we are coming across to others; that is, the sociometer is a device for measuring our inclusionary status at any given moment. In the study we have just described, the participants in the rejection condition—who had lost the ability to assess accurately how others had judged them—had broken sociometers. They had lost predictive control, in other words. One recent study has generated preliminary evidence suggesting that when participants *expect* to be rejected (because others are signaling displeasure or indifference) prior to actually being rejected, their level of subsequent aggression is greatly diminished (Wesselmann, Williams, & Pickett, 2007).

Ostracism may also lead to aggression because those who are ostracized feel invisible and thus unable to produce any kind of response, favorable or unfavorable, on the part of others. As this feeling becomes stronger, perhaps, people start to become less concerned with being liked and more motivated simply to be noticed. In the words of the BTK killer in Oklahoma, “How many people do I have to kill before someone notices me?” (Chu, 2005). Although this explanation is particularly intriguing, much more research is necessary to determine whether it is a valid one. In an analysis of the diaries of United States school shooters, it was found that the shooter had experienced social rejection in 13 of 15 cases (Leary, Kowalski, & Smith, 2003). Themes of ostracism (although much of it was apparently self-imposed) were also evident in the 2007 Virginia Tech massacre. It is important to

remember that ostracism happens daily to lots of people, and most of us are ostracized at one time or another—yet rarely does it result in aggression. In fact, the widely-used disciplinary mechanism known as “time-out” can be seen as ostracism, temporarily imposed and with the honorable goal of correcting disruptive behavior. This observation, along with the widespread use of ostracism in general, speaks to its corrective impact.

Summary of Reflective Reactions

With both of the patterns we have discussed here, the individual’s reactions to ostracism can be understood as an effort to fortify a need that has been thwarted. As Baumeister and Leary (1995) have cogently argued, it appears that generally the dominant tendency of the excluded person is to engage in corrective behavior that leads, hopefully, to that person’s reinclusion in the ostracizing group—or at least in a new group that can substitute for the old one. However, when people are stripped of control, or when they feel that they have no voice or are unable to gain the attention of others, they may resort to aggression. So strong is the need to restore control and recognition that someone may behave aggressively with complete disregard for the future consequences of such behavior.

An insidious combination of these two paths might well lead to a particularly intriguing consequence, yet to be explored empirically. First, those who are ostracized may be especially susceptible to the influence of groups who prey on such individuals. Such groups can offer a sense of purpose, an opportunity to belong, and thus a social identity; consequently, they are likely to be effective in luring ostracized individuals, who are psychologically inclined to be excessively attracted to that group when its members show interest in them. Then, when people become members of these marginalized groups, they may attempt to command attention and respect through the use of violence. Though perhaps provocative, this analysis remains speculative. Such speculation demands further research on matters such as ostracism-induced gullibility, attraction to extreme groups, and the dynamics involved when groups ostracize other groups. Some of our current research efforts are designed to address some of these issues. We have found, for example, that—following Cyberball—groups are more aggressive to other groups than individuals are to individuals (Carter-Sowell, van Beest, van Dijk, & Williams, 2009).

Depletion and Acceptance: The Consequences of Long-Term Ostracism

The bulk of our research thus far has focused on the consequences of short-term ostracism, often limited to episodes no longer than 5 minutes. Most people probably have the cognitive and emotional resources to cope with ostracism under such circumstances and are prepared to respond by fortifying those needs that are threatened by the experience. But what happens when individuals are subjected to persistent ostracism over weeks, months, and even years?

Here we have to rely on anecdotes, letters, and interviews involving those people who have been the victims of extreme, long-term ostracism. Over the last decade we have received literally hundreds of letters from people who have been ostracized for long periods of time; a number of these cases have involved the use of the dyadic form of ostracism commonly known as the “silent treatment.” We have also conducted and analyzed more than 50 in-depth interviews with individuals who have received this sort of treatment from peers, coworkers, congregations, partners, and family members—in some cases lasting as long as 40 years (Williams & Zadro, 2005; Zadro, 2004). The first author’s model of ostracism (Williams, 1997, 2001, 2007) characterizes this third stage as one in which depleted coping resources result in the acceptance of ostracism’s message: alienation, depression, helplessness, and worthlessness.

Our interviews with individuals who have suffered extended periods of ostracism suggest that they stop seeking others for support and companionship, and they eventually cease to be either socially compliant or aggressive. Instead, they ostracize themselves—thus avoiding further rejection, perhaps, but at the expense of preempting any possibility of acceptance. Further, they report a number of different signs of psychological difficulty with an alarmingly high degree of frequency: depression, suicidal ideation, suicide attempts, eating disorders, and short-term promiscuity. They feel little ability to change their situations, and they have resigned themselves to feeling completely unworthy of attention. Of course, we need to consider these anecdotal results with caution, remembering that we cannot claim that ostracism caused the effects embedded in the themes that have emerged. It is just as plausible that depression has led to ostracism as it is that ostracism has caused depression. Still, the apparent connection is troubling. It is likely that ostracism co-occurs with depression (and possibly other factors as well), creating a vicious cycle.

COMPARISON TO BULLYING

Experimentally, only a few studies address a direct comparison between ostracism and bullying-like behaviors. Using a role-play paradigm called the *train ride* (Zadro, Williams, & Richardson, 2005), Zadro and colleagues give participants a loose script to follow that portrays three or four train commuters sitting together during transit. Two of the commuters are told that the other commuter is in their college class and that this commuter had reported them to the teacher for being disruptive during class. The two sources are then told to interact with the individual who told on them. Sources are randomly assigned either (a) to argue with and verbally disparage the target who told on them, for the entire duration of the trip, or (b) to indicate initial irritation with the target, but then totally ignore him or her for the duration of the ride, talking only to each other. There are other conditions in which sources are simply to engage in a pleasant conversation, which yield generally positive interactions and feelings and are not pertinent to our question.

In this train ride paradigm, investigators have the ability to assess thoughts and feelings of targets and of sources. Thus, thoughts and feelings of the sources who engaged in a constant barrage of verbal derogation against the target can be compared to sources who ostracize. Further, and more central to our working question, targets who are verbally bullied can be compared to targets who are ostracized. Which treatment is more aversive? Which treatment threatens fundamental needs of belonging, self-esteem, control, and meaningful existence? Which treatment causes greater sadness and anger?

The results were surprisingly clear and supportive of William James's assertion. Whereas both bullying and ostracism were distressing compared to a pleasant conversation, ostracism was more aversive. Compared to bullied participants, ostracized participants felt less belonging, less control, lower self-esteem, and less sense of personal meaning. They were also sadder and angrier. Also interesting is that bullies did not feel as powerful, close, or united with their co-bully as ostracizers felt about their co-ostracizers. Thus, not only is ostracizing worse for the target, but it is (at least temporarily) better for the ostracizers! It is as though there is some sort of "conspiracy of silence" that empowers the ostracizers beyond what can be felt by merely ganging up on a target, or perhaps they simply feel less guilty if they respond by ignoring—a seemingly more socially appropriate behavior than is verbal abuse.

A second line of research that pertains directly to a comparison between bullying and ostracism can be found in recent work by van Beest, van Dijk, and Williams (2009), in which they employ a modification of Cyberball called Cyberbomb. For half the participants, instead of tossing a ball around virtual space, they are tossing a bomb (with lit fuse and all). In addition to the typical cover story, they are told that if the bomb blows up while they are holding it, they “die.” Additionally, in Study 3, the researchers added an over-inclusion condition in which the participant receives the bomb more than he or she ought to. In essence, the other players could be perceived as bullying participants in the over-inclusion condition; participants’ chances of dying have increased considerably. The results of this study also suggest that ostracism is worse than bullying. Targets reported more threat to their needs when ostracized than when bullied, although there were no differences in negative affect.

Other empirical evidence appears to support William James’s claim that torture would be preferable to being “cut dead” by others’ inattention. We also have interviewed over 50 individuals who have endured long-term ostracism (aka silent treatment) in their families, church, or workplace. Almost without exception, and without prompting, these individuals have stated that they would have rather have been beaten than to have been ignored. When it finally occurred to us to ask why they said this, we got two basic answers. First, they said that beatings would have at least meant they were important enough to pay attention to. Second, they alluded to the difficulty in getting others, like friends or police, to empathize with silence, whereas others empathize immediately with bruises (Williams & Zadro, 2005).

This anecdotal evidence points to two important reasons why bullying might be easier to deal with (psychologically speaking) than ostracism. First, ostracism threatens an existential need that bullying does not. It is important to feel important enough to merit attention by other people. Bullying, unfortunately, achieves this need all too well. But ostracism is experienced as one would experience being invisible or inconsequential, or as James said, “unworthy of attention at all.” Second, bullying is perceived immediately as unfair, wrong, and hurtful. Ostracism does not share that common perception. Some folks, even clinical psychologists, trivialize being subjected to the silent treatment. “I wish my spouse would ignore me!” say many people we talk with. Others replace the word *spouse* with *coworkers* or *students*. Perhaps said in jest, these sentiments are never heard for bullying.

SUMMARY AND PRACTICAL IMPLICATIONS

We began this chapter saying that the question, “Which is worse—bullying or ostracism?” was in many ways unanswerable. After all, much would depend upon how long one had to endure the bullying and ostracism, how widespread it was, and how strongly it was employed. Severe hazing can be fatal. Of course, severe ostracism has been found to be fatal, too, but particularly in non-Westernized tribes and animal groups.

Nevertheless, we find evidence that ostracism has the potential to threaten needs—meaningful existence especially—in ways that bullying does not.

At the very least, it is our hope that this chapter will raise the importance of ostracism and the silent treatment to the level of discussion and concern that bullying currently occupies. The fact that ostracism can be employed without detection and without punishment affords it a more insidious impact than its more obvious counterparts.

In any discussion of bullying or ostracism, the question of how children might be affected by this sort of negative social behavior is rarely far from one’s attention. Much of the empirical research presented in this chapter clearly suggests that there is cause for concern about those who are the targets of ostracism, and children may well be especially vulnerable to its effects. Given that school provides an arena in which ostracism is likely to be practiced, our research has obvious implications for teachers. Aside from ostracism’s disruptive quality and its generally deleterious influence on social harmony in the classroom and other school settings, the social and personal well-being of children who are ostracized should be a concern of teachers and other school officials. This domain thus presents another set of interesting—and important—empirical questions.

Although bullying has received considerable attention of late, research on ostracism in children is largely nonexistent at this point in time. However, studies (both completed and ongoing) within our own research program have moved the work into new territory that not only involves younger participants but also considers some other potential implications of ostracism. Recent studies have highlighted social isolation as a key factor in depression (Allen & Badcock, 2003), thus underscoring the potential clinical relevance of our research. One recent study (Saylor, Twyman, Nida, & Williams, 2008) administered a psychosocial adjustment questionnaire to a group of 180 children and adolescents ranging in age from 8 to 17 (mean age of about 12 years); included

was an ostracism measure that assessed ostracism experiences (i.e., as a target) and degree of threat to each of the four needs proposed by the Williams model. There were significant correlations between depressive symptomatology and 3 of these 5 factors measured by the ostracism scale. More interesting, perhaps, were the results of a multiple regression analysis that examined a number of possible predictors of depression, including ostracism and bullying measures; in this analysis, the total score on the ostracism measure emerged as the only significant predictor, accounting for some 31% of the total variance.

Another interesting feature of this study was that the pool of participants included several subgroups consisting of children/adolescents with specific diagnoses (in addition to those with no diagnosed problems, who made up the largest subgroup of participants). We found that those with cystic fibrosis reported having been ostracized to a much greater extent than any other subgroup, and other groups of special needs children also had experienced more ostracism than had children without such diagnoses. Given the adverse effects of ostracism, it is troubling to note that it seems to be occurring most with those children who are probably among the most vulnerable. This particular study is now in a second stage of data collection that will expand this data set considerably and enable us to draw more definitive conclusions, but the results that have emerged so far are intriguing—and they suggest that the broader implications of ostracism merit attention.

A final practical issue concerns the use of time-out in schools (and at home). Time-out is a short-term form of ostracism that involves ignoring and excluding a student or child for a period of time. Time-out, although initially viewed in the operant literature as a negative punishment (the withdrawal of attention), can, as our research suggests, be regarded as a positive punishment (an administration of an aversive stimulus—pain). Despite policies against using other forms of positive punishments (corporal punishments, in particular), time-out enjoys favored status by educators and parents alike. It appears to be more humane, yet our research would suggest that the use of time-out has the potential to be painful and debilitating. Worse yet, using time-out policies and procedures can in fact teach other children to ostracize. If it is all right for teachers to use ostracism, then children can assume it is all right for them to use it as well. Thus, we are examining the time-out literature to determine more precisely the nature of its impact, as well as how, when, and where it is used (Nida, Muckenfuss, Turner, & Williams, 2007; Turner, Nida, & Williams, 2007).

NOTE

1. We try to avoid emotionally and politically laden terms that evoke blame and dispositional attributions, so we use the term *target*, rather than *victim*, to refer to individuals who are on the receiving end of bullying or ostracism, and we use the term *source*, rather than *perpetrator*, for those who bully or ostracize.

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Victimization and the Larger Peer Context

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13

Bullying as a Means to Foster Compliance

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A growing body of developmental research on bullying (i.e., ridicule, intimidation, and exclusion) focuses predominately on either the perpetrators or victims of bullying. Although the critical role of onlookers or bystanders is recognized especially by intervention approaches (e.g., Olweus, 1994; Olweus & Limber, 1999; Salmivalli, 2002; Salmivalli & Voeten, 2004), little has been written about the effects of bullying on the peer collective as a whole. In the current chapter, we provide a conceptual analysis of bullying as fostering social norms. This analysis is based on the assumption that bullying is an abuse of power over both the victim and the bystanders who witness this abuse.

By targeting a particular person or a specific characteristic of the person, the bully communicates what is unacceptable or nonnormative. When witnessing bystanders do not convey their disapproval of bullying but instead reject the victim, the intimidating behaviors are sanctioned and encouraged (Olweus, 1993; Salmivalli, 2002). The alliance between the hostile bully and bystanders (i.e., rejecting peers) thereby helps foster group norms, which are made salient by actions against violators. To protect themselves from humiliation and distress, most group members therefore comply with the perceived or enforced norms (Juvonen & Galván, 2008). This means that hostile peer responses function to “teach a lesson” not only to those who are repeated targets of bullying and rejection (Juvonen

& Gross, 2005) but also to other group members. Hence, when someone gets ridiculed because of an “uncool” brand of shoes, no other classmate is willing to wear those shoes.

Our analysis is guided by the hypothesis that those who stand out or who do not fit in are most likely to be rejected and bullied (Juvonen & Gross, 2005). In the first part of the chapter, we describe why bullies are in the position to determine what makes someone different, and how lack of opposition from bystanders in turn helps reinforce norms of what is not tolerated by the group. The latter part of the chapter examines individual differences in compliance ranging from emulation of bullying to immunity from social pain.

LACK OF FIT

Why are some children bullied and rejected within their social groups? Most developmental psychologists agree that negative social reactions among peers are not random, but that certain behaviors or personality characteristics invite negative and even hostile responses (see Hawker & Boulton, 2000; Kupersmidt, Coie, & Dodge, 1990; McDougall, Hymel, Vaillancourt, & Mercer, 2002 for comprehensive reviews). Although certain behaviors (e.g., social withdrawal) may be considered almost universal predictors of negative peer responses, a conceptually more parsimonious account suggests that perceived deviance from social norms (Juvonen & Gross, 2005) or person-group dissimilarity (Wright, Giammarino, & Parad, 1986) predicts who becomes a social outcast (see also Boivin, Dodge, & Coie, 1995; Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999).

Research on children with disabilities clearly demonstrates that many types of deviations are frequently ridiculed and that peers with special needs are not accepted by their typically developing peers (e.g., Brandt, Kasari, & Rotheram-Fuller, 2007; Cummings, Pepler, Faye, & Craig, 2006; MacMillan, Gresham, & Forness, 1996). But youth who are envied by their peers because of their superior skills, good looks, and so forth are also at risk for peer exclusion and intimidation (cf. Owens, Shute, & Slee, 2000). It therefore appears that those who differ from others pose a threat to the group or its social identity (cf. Hogg & Turner, 1987). Hence, those who stand out or who do not “fit in” are excluded (Schachter, 1951; Williams, 2001). Based on this type of functional account of negative peer reactions, bullies appear to play a critical role in determining whom to target.

Social Structure and Power

To comprehend who is in the position to influence whom within a group, it is critical to understand the group's social structure (Juvonen & Galván, 2008). As in non-human primate troops, social hierarchies among human adolescents are established and maintained through demonstrations of power (Savin-Williams, 1977). One effective way to show one's might involves bullying. When asked about bullying, secondary school students associate it mainly with dominance and power (Rigby & Slee, 1993). Moreover, several studies document that bullies are popular or "cool" (Gest, Graham-Bermann, & Hartup, 2001; Juvonen, Graham, & Schuster, 2003; La Fontana & Cillessen, 1998; Parkhurst & Hopmeyer, 1998). Thus, bullies possess power to affect others because of their high social status.

Dominant individuals have social capital not only to maintain the social order (Sapolsky, 2005) but also power to influence the behaviors of other group members (Prinstein & Cillessen, 2003; Prinstein, Meade, & Cohen, 2003). Cohen and Prinstein (2006) demonstrated this influence manipulating social status in an Internet experiment. Eleventh-grade boys supposedly interacted with peers from their grade in a chat room. The adolescent males were most likely to emulate risky behavioral responses of high- rather than low-status peers in challenging social situations involving vandalism, teasing, smoking marijuana, and so forth. Thus, while dominant peers may engage in bullying to boost or maintain their power (Hawley, 1999), others are likely to go along, possibly even join in and emulate the hostile behavior rather than challenge it.

To examine whether youth indeed emulate the behaviors of bullies, Juvonen and Ho (2008) examined changes in antisocial behaviors across middle school grades. Consistent with the social mimicry hypothesis (Moffitt, 1993), those who regarded bullies as "cool" during the fall of 6th grade were more likely than others to display increased levels of antisocial behavior during the 2nd year in middle school. By emulating the behaviors of dominant individuals and possibly also distancing themselves from low status peers (Cohen & Prinstein, 2006; Juvonen & Cadigan, 2002; Kinney, 1993), group members increase their own social standing by appearing more like those in power (Moffitt, 1993). When high status is associated with bullying, emulation of hostile behavior is also self-protective: youth lower their risk of becoming the next victim when they act more like the bully and unlike the victim.

In sum, the social structure of the group in part explains why bullies have power over others: The behaviors of dominant aggressors not only help maintain their social status, but they also are emulated by some group members. Moreover, bullies also affect group norms. We contend that the characteristics (e.g., behaviors, looks) that are targeted by bullies promote perceptions of group norms that create compliance pressures.

Bullying Targets Norm Violations

Focusing on deviations or violations of social norms is an effective and informative way to define social norms (Baumeister, Zhang, & Vohs, 2004; Eder & Enke, 1991). When a bully calls a classmate a “fag,” the ridiculing communicates to the rest of the group that homosexuality is not tolerated or that “members of our group are heterosexual.” Thus, bullying, much like teasing (e.g., Eder, 1991, 1995) and gossip (Baumeister et al., 2004), helps foster social norms that increase within-group conformity.

Teasing can be conceptually distinguished from ridicule and other forms of bullying in terms of its friendly intent, but empirically the distinction is made based on the response of the target (Eder, 1995). If a sly comment such as, “Nice shoes!” is met with a smile, the friendly intent presumably is understood by the recipient. But if the target reacts with embarrassment or discomfort, the comment is construed as an insult. Given that the boundary between teasing and ridicule is somewhat elusive and often difficult to judge, research on teasing is highly relevant to explaining group dynamics involved in bullying.

Although joking comments about someone’s shoes are not necessarily meant to hurt the target’s feelings, the comments nevertheless reinforce the group’s concern about the markers of its identity (“We don’t wear shoes like that!”). The content of the comment provides insights into the group identity that separates one group from another (cf. Terry & Hogg, 1996). Teasing therefore provides an indirect way to enforce social norms among group members by allowing marking of violations of norms without directly accusing someone (Eder & Enke, 1991). The same dynamics apply to bullying, except that the threat of exclusion is explicit.

Gossip also entails communication about social norms (Baumeister et al., 2004), and participation in the spreading of such information strengthens group members’ sense of belonging within a group. Baumeister et al. (2004) demonstrated that adults who spread rumors gain in social status because engaging in this activity conveys that the gossiper

is knowledgeable about rules that govern the collective. Similar findings have been documented regarding bullying (Villareal, Bellmore, & Ho, 2008). The social standing of bullies varies depending on the strength of their reputation. Popularity decreased for students who did not maintain their bully reputations, whereas those who develop such a reputation by the end of the school year gain in popularity. Hence, bullying, much like participation in gossip, can strengthen and elevate the perpetrators' status within the group.

In sum, tactics used to bully peers frequently entail valuable information about group norms. By targeting a specific individual within the collective, the perpetrator questions whether the target belongs to the group and thereby helps define the boundaries of group membership. This message is not only received by the targeted individual but also by onlookers. Unless bystanders object to bullying, the norms are reinforced by the rest of the group. But are bystanders concerned about bullying? What can explain their lack of involvement in incidents?

Lack of Bystander Opposition

Although most youth regard bullying as unacceptable or wrong (Boulton, Trueman, & Flemington, 2002; Rigby, 2006), observational research demonstrates that peers rarely intervene in incidents (Hawkins, Pepler, & Craig, 2001; O'Connell, Pepler, & Craig, 1999). Observations of bullying incidents in Canadian elementary schools reveal that although peers are present in over 85% of bullying situations, a peer intervenes in only about 10%–19% of the cases (Atlas & Pepler, 1998; Hawkins et al., 2001). Among Finnish 6th-grade students, the majority were classified as reinforcers or assistants to the bully as opposed to defenders (Salmivalli, Lagerspetz, Björkqvist, Kaukiainen, & Osterman, 1996). Thus, bullying rarely gets publicly challenged, even when the witnesses object to it (Salmivalli & Voeten, 2004).

There are a few possible reasons why onlookers do not intervene with incidents and challenge bullying even when they disapprove. First, witnesses may simply want to protect themselves. If they challenge the bully, they are risking their own safety and reputation (Juvonen & Galván, 2008). Such concerns should manifest themselves in heightened level of fear or anxiety (Baumeister & Tice, 1990). Although these effects are well documented in the context of exposure to community violence (Lynch, 2003), witnessing of family abuse (e.g., Adams, 2006) and marital discord (Cummings, Kouros, & Papp, 2007), there is little research

on this topic regarding bullying. We are aware of only one study documenting the association between observed real-life incidents of bullying and distress. Nishina and Juvonen (2005) demonstrated that on days when sixth grade students reported witnessing a bullying incident, they also reported heightened levels of worry, fear, and nervousness.

Witnessing bullying incidents is anxiety-proving in part because youth realize that they can become the next victim. This is not only a reason why bystanders do not intervene but also a reason why anxiety may increase level of compliance. Janes and Olson (2000) documented the effects of such *jeer pressure* (i.e., the potential threat that ridicule imposes on bystanders), showing that individuals who witnessed someone acting in a particular manner were inhibited from displaying similar behaviors themselves. Thus, anxiety likely mediates the association between witnessed incidents and increased compliance. Members of the group come to understand that by looking or acting like the one who is bullied, they run the risk of becoming the next target and outcast.

Anxiety and concerns over one's status and reputation shape behavior even when the "accusation" or label is false. Eder (1995) demonstrated that norms about sexuality are often endorsed through name calling and ridicule. Labels, such as "fags" and "sluts," mark what is beyond the limits of acceptable male and female sexuality. The concern for getting labeled as a homosexual or a sexually promiscuous individual therefore restricted displays of affection between same-sex youth (especially boys). Similarly, concern for being labeled sexually promiscuous can restrict girls' choice of clothing (especially of those who mature earlier than others). Thus, bullying sets an example of what not to do or wear.

Reinforcement of (False) Norms

Although analyses of the emotional effects on bystanders can help us comprehend compliance from the perspective of the individual, the collective bystander "effects" have additional ramifications, namely, that lack of objections to bullying maintain and reinforce false perceptions of acceptable conduct. In other words, while the effects of witnessing someone else getting bullied restrict public behavior, lack of opposition also gives an impression that bystanders accept the perpetrator's conduct (Juvonen & Galván, 2008). As such, the lack of bystander opposition reinforces group norms that may not be representative of, or necessarily consistent with, the private opinions and attitudes of its group members. Labeled as *pluralistic ignorance*, false perceptions of group norms

therefore arise: “Pretence becomes reality” (Miller & Prentice, 1994, p. 542). Based on research on juvenile delinquents, Miller and Prentice (1994) concluded that the false norms “led to a level of antisocial behavior that no individual member fully embraced.”

The best empirical evidence for pluralistic ignorance comes from research on college drinking. College students not only overestimate the level of drinking among their peers (e.g., Baer, Stacy, & Larimer, 1991) but also rate themselves as less comfortable with drinking on campus than the average student and other friends (Prentice & Miller, 1993). When none of their peers publicly question drinking behavior, students behave in ways that strengthen their social identity and sense of belonging to the group. Thus, misperceptions of the norm guide the behavior of youth who wish to be part of a group, even when they do not privately accept the behavior.

Although lack of opposition can give an impression that behavior is accepted, subtle nonverbal responses further enforce misperceived norms (Miller & Prentice, 1994). In the case of bullying, when a student is targeted the witnesses might smile or even nervously laugh at the incident. These positive reactions on the part of the observers of bullying further perpetuate misperceived norms of approval of the behavior. Similarly, if the target wants to hide or feign embarrassment, the mere lack of a visible negative response may prevent observers from intervening (cf. Salmivalli & Voeten, 2004). Therefore, ridicule may look like friendly teasing when the target does not want to exhibit hurt feelings. Bystanders are even less likely to intervene in such situations. Therefore, a false sense of acceptability of intimidation is fostered by the apparent acceptance of the behavior by the observers and in some cases also by the victim.

In sum, social norms conveyed through bullying may be perpetuated by false assumptions. When peers witnessing bullying and victims themselves fail to communicate their disapproval of the treatment of the bully, the intimidating behaviors maintain group norms that are partly arbitrary and most likely also inaccurate. But not all group members are equally affected by the threats and the norms set by the dominant bullies and supported by others. We next turn to the topic of individual differences in compliance to group norms.

INDIVIDUAL DIFFERENCES IN COMPLIANCE

The conformity regulating function of bullying does not mean that all group members are equally affected by the threat of becoming the next

target. Rather, there are substantial differences in the degree to which youth comply with perceived norms. We have identified three groups as having distinct reactions to bullying. We start with the most vulnerable group inasmuch as they may modify their behavior to the degree that compromises their subsequent adjustment. This group is not only motivated to comply with perceived norms but also to emulate the behavior of their more dominant peers. Another group includes individuals who simply go along with bullying but who do not emulate the bully. This second group is motivated by protection of their social status, and their socially adaptive behavior may be an indicator of their social skills. Finally, a third group includes youth who seem immune to negative peer sentiments and group norms; they do not change their behavior to emulate others nor are they particularly hurt by rejection.

The Most Vulnerable

As discussed earlier, passive permission of bullying (e.g., not intervening) may reveal less about the endorsement of group norms and more about the need to protect oneself. In other words, those least likely to challenge the conduct of more dominant others may be particularly sensitive to negative peer reactions (Romero-Canyas & Downey, 2005). Moreover, these individuals might not only comply with norms set by dominant individuals, but also engage in the very behaviors they associate with power (cf. Juvonen & Ho, 2008). Thus, uncertainty and concern about peer evaluations increase compliance and emulation of behaviors associated with dominance (Cohen & Prinstein, 2006).

Allen, Porter, and McFarland (2006) suggest that susceptibility to negative peer influence reflects lack of autonomy or ability to defend one's point of view. They found that those who changed their opinions to match their friends' not only were engaging in a range of risky behaviors (externalizing behaviors, substance use), but they also subsequently experienced more instability in close friendships, decreased popularity, and higher levels of depression. These findings suggest that high level of compliance is associated with imbalanced friendships that do not last, as well as with emotional vulnerability.

Extending the idea of imbalanced dyadic peer interactions, Juvonen and Ho (2008) showed that unreciprocated desire to affiliate with peers who engage in bullying in the fall of the first year in middle school is associated with elevated levels of antisocial conduct two years later. No support was obtained for the mutual attraction hypothesis, suggesting

that reciprocal friendships between peers who engage in bullying during the first year in middle school do not increase antisocial behavior over time. Thus, unmet social desires or needs are powerful motivators to change behavior.

In a recent study (Galván & Juvonen, 2008), we relied on a new measure that directly assesses the need to “fit in” with a group. The measure assesses the degree to which youth are willing to modify their behaviors or opinions to be consistent with those of their peers in order to protect or boost their social standing (e.g., to belong to a “cool crowd”). Both perceived behavioral norms and the need to fit in had largely independent effects on both antisocial as well as altruistic conduct (i.e., standing up to the bully or resolving conflicts). However, conformity to antisocial norms was stronger among boys with high, compared to low, need to fit in. These findings provide direct evidence supporting the notion that unmet social needs are related to peer-directed behaviors and, in the case of male students, also to their level of compliance.

But youth may also engage in the behavior of the dominant peers not out of fear but simply to improve their inclusion to the group (Williams, 2007). In one experimental study with college students, participants who had previously been either rejected or included were asked to generate ideas with the group of peers who had just rejected or included them. The participants worked on the task either coactively, in a manner that their individual efforts could be easily assessed, or collectively in a way that their efforts were unidentifiable (Williams & Sommer, 1997). Consistent with social loafing effects, individuals who were previously accepted worked less hard collectively than coactively (Karau & Williams, 1993). Conversely, rejected female students worked harder in the collective relative to the coactive condition, supposedly to gain the group’s approval.

Taken together, the evidence suggests that those who feel uncertain about their peer relationships (i.e., those who do not defend their opinions but give in, those whose social needs of friendships or inclusion are not met) are most likely to comply with perceived norms. But also the mere desire to belong to a particular group may be sufficient to comply with what is considered normative within their group. Youth unsatisfied with their relationships or social ranking, those who possess low status, or individuals with a history of bullying and rejection experiences might be most vulnerable to negative “peer pressure.” Unless their unmet social needs can be satisfied, these youth are at risk for long-term adjustment problems (Allen & Antonishak, 2008; Juvonen & Gross, 2005).

Strategic Self-Presentation and Compliance

But what about others whose social needs may be met, yet they seem to comply with the group norms and not challenge bullying? By not objecting to or intervening with the behavior of the high-status bully, youth do not risk their status by objecting to bullying, but they are also unlikely to join in to bully anyone.

Socially adjusted youth, who know how to adjust their behavior in ways that help them get along with others, are likely to resort to strategic self-presentation tactics to fit in (Baumeister, 1982; Leary & Kowalski, 1990). These youth are able to modify their behavior as needed (i.e., depending on whom they desire to impress or get along with), and therefore the way they behave with dominant others is not necessarily consistent with their private beliefs. They understand how impression management works. Although 6th-grade middle school students disapprove the ridiculing of loners, they recognize that they must go along and portray themselves as tough to protect themselves (Juvonen & Cadigan, 2002). Thus, behaviors are affected by dominant bullies, but as long as youth are cognizant of their motives, impression management tactics have no long-lasting negative effects.

One reason teens seem to put up with bullying and comply is that they may not possess the confidence or skills to stand up for others in a manner that is socially acceptable (Pöyhönen, Juvonen, & Salmivalli, 2008). Lack of low-risk strategies to intervene with incidents involving peers may account for the apparent contradiction between private disapproval of bullying and public behavior that seems to reinforce intimidating conduct.

Taken together, there is a fine, but critical, line between overt conformity and skillful compliance. While some youth comply with norms set by a dominant group member because of their understanding of negative social consequences of noncompliance, there are others who do not learn their lesson because they seem immune to negative peer reactions.

Immunity From Social Pain

Why do some children appear *not* to be hurt by the threat of exclusion? To understand this issue, we turn to those youth who engage in bullying themselves. In spite of their high social standing, bullies are often also rejected by their peers (Asher & Coie, 1990). That is, although they

may not publicly get challenged, rarely do peers wish to spend time with those who intimidate others. Yet, bullies who are rejected by their peers do not report social pain following rejection (e.g., Parkhurst & Asher, 1992; Renshaw & Brown, 1993). This finding implies that the group function of rejection might not work for bullies. Thus, not surprisingly, immunity from social pain may explain why bullying behavior is very difficult to change.

A number of explanations have been advanced to account for the absence of direct adverse psychological effects of peer rejection on aggressive children and adolescents. One explanation that has received considerable attention is that aggressive-rejected youth display a variety of self-protective social cognitive biases when assessing their own competencies and their responsibility (or lack thereof) for problematic peer experiences (Dodge & Crick, 1990; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002; White, Rubin, & Graczyk, 2002). In a meta-analysis, Orobio de Castro and colleagues (2002) found aggressive children perceive a peer's ambiguously threatening behavior as intentionally provocative. This attributional bias helps explain the aggressive child's lack of emotional distress, inasmuch as blame directed at others is associated with anger and hostility (Weiner, 1995) rather than with social anxiety or depression (Graham, Hudley, & Williams, 1992).

Other types of social-cognitive biases could also account for the lack of distress following peer rejection. Schippell, Vasey, Cravens-Brown, and Bretveld (2003) identified attentional biases among adolescents classified as reactively aggressive: they displayed suppressed attention to rejection, ridicule, and failure cues. Whereas vulnerable youth appear hypersensitive to negative peer evaluation, aggressive "deviates" seem *hyposensitive* to negative peer reactions. Hence, the apparent protection enjoyed by bullies who are rejected may be in part explained by individual differences in social cognitive processing, including but not limited to attributional and attentional biases.

In addition to these social-cognitive biases that help some youth ignore the pain associated with negative peer interactions, sentiments are not expressed as overtly toward aggressive peers as toward other rejected individuals. Peers may simply be afraid to convey their disapproval of the behaviors of the mighty in their group. Therefore, it is not surprising that aggressive-rejected boys are significantly less likely to report negative peer treatment than their socially withdrawn counterparts (Sandstrom & Cillessen, 2003). Thus, in addition to social-cognitive biases that protect

aggressive youth from experiencing social pain, peer interactions experienced by these youth are kinder than those experienced by other rejected youth.

There is additional evidence suggesting that aggressive youth are not socially isolated in spite of their rejected status, but they are connected to other deviant youth. These relationships can therefore compensate for the rejection by the larger peer group. For example, Cairns, Cairns, Neckerman, Gest, and Garipey (1988) found that compared to nonaggressive peers, aggressive 4th- and 7th-graders were equally likely to be nominated as a best friend, to have reciprocal friendships, and to be perceived as a central member of a social cluster. However, these peer affiliations are typically formed with other aggressive youth (e.g., Bagwell, Coie, Terry, & Lochman, 2000). Moreover, affiliation among deviant peers is known to facilitate deviance training, whereby antisocial youth encourage one another's problematic behavior (Dishion, Spracklen, Andrews, & Patterson, 1996).

If peer rejection serves to enforce group norms, then the absence of negative sentiments (or lack of awareness of such sentiments) toward bullies constitutes a breakdown of the norm enforcement process. Although lack of negative feedback from peers protects aggressive-rejected children from social distress, they have less of an impetus to modify their behavior, especially when they have similar others to affiliate with. Yet in the long run, rejected aggressive youth are likely to display serious adjustment problems (e.g., Kupersmidt & Coie, 1990; Tremblay, Masse, Vitaro, & Dobkin, 1995). Patterson, Capaldi, and Bank (1991) contend that peer rejection in childhood restricts aggressive children's options for healthy peer relationships, limiting them to associate mainly with similarly aggressive peers. It is therefore not surprising that antisocial (including aggressive) youth who affiliate with similar others are at greater risk for subsequent criminal behavior (Dishion, McCord, & Poulin, 1999). Thus, the lack of responsiveness to peer rejection in the short run can carry some serious long-term risks.

In sum, although most youth wish to avoid the company of bullies, the dominant status of bullies is not compromised. Indeed, group leaders are not necessarily prototypical but rather, in a sense, deviates who frequently engage in strategic marginalization of others (Hogg, 2005). Aggressive youth who are initially rejected by their adjusted peers might therefore ultimately exert considerable power over others because they appear unaffected by the avoidance or dislike of their peers. And because unlike nonaggressive deviates, they are volatile targets, group

members are reluctant to take on a teaching mission to modify their behavior.

CONCLUSIONS AND PRACTICAL APPLICATIONS

Research on bullying focuses mainly either on the perpetrators or victims of bullying, and relatively little is written about the social or group *function* of bullying. In this chapter, we analyzed bullying as a mechanism that highlights violations to group norms and fosters compliance. We began the chapter by describing the social misfit hypothesis, suggesting that perceived deviance from social norms or person-group dissimilarity predicts who becomes a social outcast. We then discussed how bullies show their might by targeting individuals who deviate from the group norms. Whether motivated by intimidation or by admiration, bystanders respond to bullies' actions in ways that are likely to increase (rather than alleviate) the social pain experienced by the victim. Onlookers side with bullies in an attempt to protect themselves or at times to boost their social status. Lack of bystander opposition further marginalizes the victim of bullying and helps promote group norms that may not be representative of, or even consistent with, the private opinions and attitudes of group members.

In the second part of the chapter, we discussed individual differences in motivations to comply with the presumed norms and the possible long-term consequences of compliance or lack thereof. The individuals most vulnerable to bullying are least likely to challenge the conduct of the bully and may be more likely to emulate the bully's behavior because they are particularly sensitive to negative peer reactions. A second group includes socially adjusted youth whose behaviors can be understood in light of their self-presentational concerns. These individuals strategically straddle the line between overt conformity and skillful compliance. The last group we discussed includes those who seem immune to social pain. Youth who engage in bullying fall into this group, inasmuch as peers' negative reactions (rejection or aggressive retaliation) do not seem to affect them. This apparent immunity may reflect their social realities in the sense that others are reluctant to display negative feelings toward bullies, and bullies also often affiliate with like others. Additionally, self-serving biases in social information processing can account for the lack of distress and lack of initiative to modify their hostile behaviors. Regardless of the reason, immunity from social pain may explain why bullying

behavior persists and why these behaviors are difficult to change without considering the larger social context in which bullying takes place.

Beyond Individual Differences

The principles pertaining to bullying and maintenance of peer group norms outlined in this chapter can also help account for findings on the effects of social settings on perceptions of belonging and safety. Juvonen, Nishina, and Graham (2006) found that ethnic diversity (as opposed to homogeneity) is associated with less bullying, safer school climate, and lower sense of loneliness. In contrast to homogenous contexts in which all members may feel pressure to conform to a narrow set of norms, diverse settings with multiple social groups and norms possibly provide youth with more opportunities to fit in and belong. Thus, in addition to individual differences in sensitivity to social norms, further research is needed on how different group compositions affect perceived compliance pressures.

Intervention Approaches

But are bullying and its ill effects on individuals and groups inevitable? First of all, let us be clear about two important premises underlying our analyses. We are not saying that bullies are consciously shaping group norms, but that their behaviors inadvertently have these negative effects on peers. Second, we are also not implying that hostile means is the only way for youth to become popular. Although high status can be achieved by hostile and abusive means, it does not mean that all high-ranking or popular youth are bullies. Rather, bullying may be a relatively easy way to gain status especially during the times of social reorganization (e.g., when youth start in a new school; Juvonen & Galván, 2008). There are certainly popular youth who do not engage in bullying (Villarreal et al., 2008), and not surprisingly, these are also the ones most likely to challenge the bully (Pöyhönen et al., 2008).

What are the ways then to decrease bullying and its detrimental effects? It is critical to understand that bullying is not a problem of a few troubled kids, but a collective challenge requiring change in the power dynamics that support bullying. This implies that individually focused programs aimed to change the behavior of bullies are inadequate. Even if aggressive behavior can be reduced initially, the social reward system (i.e., fear and respect displayed by peers toward a bully) is likely to win

over in the long run. Therefore, reductions in aggression are unlikely to be maintained over time unless collective norms that reward bullying are changed.

School-wide antibullying interventions developed in Scandinavian countries (Olweus, 1993; Olweus & Limber, 1999; Salmivalli, Kaukiainen, & Voeten, 2005) aim to change the pro-bully culture of schools. Youth are taught how they contribute to the problem of bullying as bystanders. This can be accomplished by discussing stories about bullying (or also about discrimination, persecution, or genocide). Films that help youth take the perspective of the victim and highlight the role of bystanders are used to initiate discussion. These empathy-inducing and consciousness-raising exercises are then complemented with explicit instruction of behavioral strategies that help youth not only to defend themselves but also to stand up for others (Juvonen & Graham, 2004). Program evaluations (Olweus, 1994) show about 50% decrease in the number of students reporting being bullied or bullying others. Also, overall increase in satisfaction with school climate suggests that the social dynamics of the collective are changed. Although not assessed in program evaluations, we predict that students would also report decreased compliance pressures as bullying incidents decline.

In sum, although there are times and situations when youth resort to primitive tactics to form social hierarchies, it does not mean that bullying and its negative effects on individuals and groups cannot be changed. The challenge is to make sure that peer networks do not function as ape troops but more as fair democratic societies where everyone can find a niche and fit in. By relying on systemic school-wide intervention efforts, the ultimate goal is that students are feeling united not by their concerns for their safety or social status, but by their ability and confidence to object to the hostile behaviors of dominant youth.

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Social Networks and Peer Victimization: The Contexts of Children's Victimization by Peers

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As the earlier chapters of this volume make clear, children's victimization by peers is a pervasive experience with psychological, academic, and social consequences (e.g., Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998). Previous research has identified numerous personal characteristics that place children at risk for victimization. However, recognition that victim/bully interactions are embedded within a larger peer group context necessitates attention to children's social ecologies. Such a focus enhances identification of risk factors and extends current understanding of the consequences of peer victimization. Whereas several recent reviews have considered the contribution of setting to peer victimization (Card, Isaacs, & Hodges, 2008; Espelage & Swearer, 2004; Rodkin & Hodges, 2003), our interest here is specifically in the social networks that are the interface between the child and the larger peer group.

In this chapter, we will consider relations between victimization in the peer group and children's social networks. We contend that these structures serve as the background for much of the day-to-day interactions that a child has within the peer group. We begin with a wide perspective on social networks and consider multiple levels of analysis. In subsequent sections of this chapter, we review literature documenting associations between victimization and various aspects of social networks; describe

the aggressor-victim dyad as a particular point of focus for studying victimization and social networks; offer developmental considerations in understanding victimization and social networks; and suggest directions for future research.

ASPECTS OF SOCIAL NETWORKS

A complete evaluation of the role of social networks in bully/victim problems requires a broad conceptualization. One can consider multiple levels of analyses along with different aspects of the surrounding social environment. In this section, we briefly delineate the central features of networks in children's peer groups. We focus, in particular, on the aspects of these structures that are most likely to be relevant to phenomenon of peer victimization.

Levels of Social Networks

We frame our review of social networks by arguing that these structures serve as interactional bridges linking the individual child with the broader peer group microsystem (see Bronfenbrenner, 1979). As such, we begin with the individual as the most proximal, and the entire peer group as the most distal, considerations. Spanning these two endpoints are networks that consist of both dyads and subgroups comprised of more than two individuals. Our perspective follows roughly from previous organizations by individuals, interactions, dyads, and groups (e.g., Hinde, 1987; Rubin, Bukowski, & Parker, 1998), but we investigate levels of linkage between the individual and the peer ecology specifically in relation to peer victimization.

Individuals

The starting (and too often, ending) point of much research is on the individual victim. Individual risk factors for victimization include physical weakness, internalizing problems, some externalizing problems, low self-concept, and socially unskilled behaviors (see, e.g., Card, Isaacs, & Hodges, 2007). Although identifying individual characteristics that place children at risk for peer victimization is important, it does not provide a complete picture. Just as all conceptualizations of human development must consider the interactions or interplay between individuals and their environments

(e.g., Anastasi, 1958; Gottlieb, 1991), it is important to consider how these individual characteristics fit within the peer ecology. In other words, we need to consider levels of the social network distal to the individual.

Dyads

Pairings of two individuals, or dyads, represent the most fundamental level of social interaction and structure (Bronfenbrenner, 1979). For this reason, there is considerably more theoretical and empirical work devoted to dyadic relationships than to other levels of social networks. Dyads can be defined in numerous ways, including in terms of both affective and behavioral characteristics. Researchers typically assess dyads through mutual nominations or ratings of peers; for instance, children A and B might be considered to have an antipathetic relationship if child A reports disliking child B and child B reports disliking child A. We reserve more extensive consideration of peer victimization and dyads until later in the chapter.

Subgroups

A focus on dyads provides only a partial picture of children's typical social interactions. Much of children's time is spent in subgroups that are larger than two individuals yet smaller than the full peer group (see, e.g., Bühler, 1933). Many terms have been used in the literature to describe these subgroups (e.g., cliques, blocks, crowds, networks). Researchers have also employed a number of different techniques to examine such subgroups, including (a) social network analysis identifying complete (i.e., cliques) or near-complete (i.e., clans) ties within subgroups (see Cillessen & Borch, 2008; Xu, Farver, Schwartz, & Chang, 2004); (b) social network analyses that maximize within-group links and minimize between-group ties (e.g., blockmodeling; see Templin, 2008); or (c) classification into ecologically relevant crowds (e.g., jocks, brains; see Brown & Klute, 2003). Subgroups represent more than just the collection of the individuals or dyads that comprise them. Instead, subgroups serve as salient references for individuals that hold implicit norms for behavior, attitudes, and social roles.

Peer Groups

Dyads and subgroups are aspects of the larger peer group. Here, we define this peer group as the entire collection of peers with whom a child

could potentially (if not actually) interact within a given context. Put differently, this larger peer group can be considered the child's entire microsystemic peer ecology within a particular setting. For instance, the collective of all other students within a middle school might be considered as the larger peer group for a child while at school. Structural barriers may limit the size of this larger peer group; for instance, schools in which children in different grades have little contact might create peer groups comprised only of same-grade children, and same-gender or ethnically segregated schools may limit the composition of peers with whom a child might interact in school. This larger peer group is implicitly the focus in research using aggregate consensus measures, such as peer acceptance or rejection measures in which researchers sum the total number of members of a peer group who report liking or disliking the focal child.

Overlap in Levels of Social Networks

Although it is useful to conceptually distinguish individuals, dyads, subgroups, and larger peer groups in our review, one should remember that there is fluid overlap among these levels. This overlap implies that (a) characteristics of individuals make it more or less likely that they will have certain types of dyadic relationships, and involvement in dyadic relationships in turn affects adjustment at the level of the individual; (b) dyadic relationships may serve as entry points into subgroups, and individuals' places in subgroup may afford opportunities for the formation or change of dyadic relationships; and (c) peer groups might be partly defined by the existence and relations among subgroups, and aspects of the larger peer group influence the structure and features of the contained subgroups (e.g., Bukowski, Pizzamiglio, Newcomb, & Hoza, 1996; Newcomb, Bukowski, & Bagwell, 1999). In sum, although we consider four levels of social networks in relation to victimization, it must be remembered that no one of these levels occurs in isolation from the others.

Content of Social Networks

In the statistical field of social network analysis (see Wasserman & Faust, 1994), networks are analyzed in terms of "ties" that can represent any type of linkage among individuals. We adapt a similarly broad view in our analysis of victims' social networks, considering ties defined both by affect and by behaviors.

Affective Networks

The most common practice of peer relations researchers interested in social networks is to evaluate ties of positive affect, or liking. At the level of the dyad, one might consider friendships to be comprised of peers who mutually like each other (Asher, Parker, & Walker, 1996; Bukowski & Hoza, 1989). Subgroups are often defined as collections of individuals in which most like one another (Cillessen & Borch, 2008; Xu et al., 2004). At the peer group level, there has been considerable emphasis on peer acceptance, or being liked by many other peers (see, e.g., Cillessen & Bukowski, 2000; Newcomb, Bukowski, & Pattee, 1993).

Unfortunately, consideration of negative affective ties has received incomplete attention. At the peer group level, considerable attention has been placed on peer rejection, or being disliked by many peers (see Cillessen & Bukowski, 2000; Newcomb et al., 1993). Only recently, however, has attention been devoted to dyadic mutual disliking, often called antipathetic relationships or enemies (Hartup & Abecassis, 2002; Hodges & Card, 2003). Although it is unlikely that subgroups defined by multiple individuals disliking one another exist (such groups would be intransitive; see Wasserman & Faust, 1994; though it is possible for groups based on other features, such as affiliation), it is plausible that collective dislike between subgroups exist and are relevant to understanding peer victimization.

Behavioral Networks

We can also consider networks defined by behavioral interactions among individuals. Most obviously relevant to our consideration of peer victimization are networks of aggression and victimization. Given that any act of aggression (and therefore any receipt of victimization) necessarily involves at least two individuals, it is surprising how little attention has been devoted to networks of aggression and victimization (despite calls for such a focus, e.g., Pierce & Cohen, 1995). Recent research has supported the importance of considering victimization within dyadic relationships (Card & Hodges, in press; Coie et al., 1999; Hodges et al., this volume; Veenstra et al., 2007), and we review this evidence in depth later in this chapter. We also speculate on considering subgroups and the larger peer groups in relation to networks of directed aggression.

In addition to individuals who themselves enact aggression or receive victimization, it is useful to consider possible supporting roles that

individuals take and networks defined by these roles. Salmivalli and colleagues (e.g., Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996; see Salmivalli, 2001) described the roles of assistants (i.e., children who directly aide the aggressor, e.g., by holding the victim) and reinforcers of aggressors (i.e., children who indirectly aide the aggressor, e.g., cheering on the aggressor), as well as defenders of victims (i.e., children who attempt to protect the victim). Although these roles are defined by children's behaviors toward others, nearly all research to date has investigated these roles in terms of the individuals enacting them, that is, focusing only on children's roles without considering the specific peers that they aide or protect (cf. Veenstra & Huitsing, 2008).

Overlap of Affective and Behavioral Networks

Before concluding this section, it is important to point out the independence of defining networks by affect and by behaviors. There is temptation to erroneously equate liking with positive behaviors and disliking with negative behaviors. However, consideration at just the dyadic level indicates that some friendships contain aggression (e.g., Card & Hodges, 2007; Grotperter & Crick, 1996). Similarly, many antipathetic relationships do not contain aggression and may actually involve attempts to reconcile (Card, 2007; Card & Hodges, 2007). In other words, although there may exist overlap among affective and behavioral networks (e.g., antipathetic relationships containing more aggression than friendships), the two types of networks should be kept conceptually distinct.

SOCIAL NETWORKS OF VICTIMS

Victims' Dyadic Relationships

Friendships

Children who are highly victimized tend to have relatively few friendships (e.g., Boulton, Trueman, Chau, Whitehand, & Amatya, 1999; Hodges, Boivin, Vitaro, & Bukowski, 1999; Hodges, Malone, & Perry, 1997; Ladd, Kochenderfer, & Coleman, 1997). Moreover, longitudinal research has shown that having no or few friendships is both a risk factor (Boulton et al., 1999; Hodges et al., 1999) and consequence (Ladd et al., 1997) of peer victimization. The latter direction of effect (i.e., victimization predicting fewer friendships) might be due to a tendency for peers

to distance themselves from the victimized child. The former direction of effect suggests that friendships may reduce a child's risk for victimization because friends might play a protective role from aggression.

Empirical support for a view of friendship as a factor that mitigates risk for victimization is somewhat limited, but a number of relevant studies have been conducted. Hodges and colleagues (1997) found cross-sectional associations between submissive or aggressive behavioral styles and peer victimization, but these associations were attenuated for children who were able to establish friendships with classmates. Likewise, Schwartz, McFadyen-Ketchum, Dodge, Pettit, and Bates (1999) reported that friendship buffers the relation between externalizing behavior in the early years of elementary school and victimization by peers in third and fourth grade. Schwartz and colleagues (Schwartz, Dodge, Pettit, Bates, & Conduct Problems Prevention Research Group, 2000) later found that friendship similarly mitigates the relation between harsh home environments and peer victimization.

Although friendship has generally been viewed as a factor that enhances the adjustment of victimized children, these close dyadic relationships can also bring risks. Friends who are well-adjusted and socially competent can serve as positive role models (Parker, Rubin, Price, & DeRosier, 1995), but affiliation with peers who are characterized by aggression or other behavior problems may accelerate trajectories toward negative outcomes (Laird, Pettit, Dodge, & Bates, 1999). Youth who form friendships with aggressive peers often experience increases in disruptive behavior (Lahey, Waldman, & McBurnett, 1999). Moreover, there is some evidence that friendships with aggressive or antisocial peers are relatively low in quality and lacking in important attributes such as closeness, security, and companionship (Dishion, Andrews, & Crosby, 1995; Poulin, Dishion, & Haas, 1999). The issue of friendship quality is notable because friendships that are high in negative features do not promote adjustment (Berndt, 1996).

The attributes of children's friends have rarely been considered in the existing bully/victim literature (Hodges et al., 1999). However, one recent study examined the implications of aggressive and nonaggressive friends in the link between victimization by peers and academic declines over two school years (Schwartz, Gorman, Dodge, Pettit, & Bates, 2008). Peer victimization was associated with academic declines only when children had either a large number of aggressive friends or a small number of nonaggressive friends. These findings might indicate that aggressive friends exacerbate the negative impact of peer

victimization whereas nonaggressive friends could have a more ameliorative role. Results such as these will need further replication, but highlight the need to consider the implications of dyadic affiliations in the context of the wider social environment. Friendships might not necessarily function to buffer victimized children against risk in schools where peers tend to be characterized by aggression or other maladaptive behaviors.

Hanish and Guerra (2000) offered a similar perspective, hypothesizing that disengagement from the peer group or social withdrawal might be adaptive in difficult urban settings. The primary assumption underlying this suggestion is that peer groups that are characterized by high rates of disruptive behavior problems offer numerous opportunities for maladaptive socializing influences. Moreover, aggressive tendencies among a child's peers could have direct implications for determining bully/victim outcomes. Simply put, a child will not be at high risk for bullying if he or she is not in close proximity to potential aggressors. Consistent with this suggestion, Astor and colleagues reported that children are more likely to experience victimization in schools where peers are characterized by aggressive and disruptive behaviors (Astor, Benbenishty, & Marachi, 2004). Hanish, Ryan, Martin, and Fabes (2005) found that preschoolers were more likely to be bullied in classrooms with high aggression levels.

Antipathetic Relationships

As mentioned, antipathetic relationships are relatively under-studied phenomena involving mutual dislike between two individuals. Parallel consideration of friendships, full understanding of antipathetic relationships requires a focus on both frequency and features of these relationships. Existing research indicates that victimized children are more commonly involved in these antipathetic relationships than non-victimized children (Abecassis, Hartup, Haselager, Scholte, & Van Lieshout, 2002; Card & Hodges, 2007; Card, Isaacs, & Hodges, 2000; Murray-Close & Crick, 2006; Parker & Gamm, 2003; Schwartz, Hopenmeyer Gorman, Toblin, & Abou-ezzedine, 2003). However, longitudinal research has not evaluated whether these antipathies are risk factors for or consequences of victimization (the longitudinal study by Murray-Close & Crick, 2006, only looked at the longitudinal co-occurrence of antipathetic relationships and victimization without considering temporal primacy).

Insofar as we are aware, only one study considered the characteristics of children's antipathies in relation to victimization; Card and colleagues (2000) found that victimization is associated with having antipathetic relationships with peers who are aggressive, physically strong, and themselves not victimized. These findings suggest that the association between antipathetic relationships and victimization may be due to victimization received within these relationships. Although we suspend full discussion of aggressor-victim relationships until later, it is worth noting here that other research has shown that victimization is more common in antipathetic relationships than in other relationships (Card, 2007; Card & Hodges, 2007; Peets, Hodges, & Salmivalli, 2008a) and that this victimization by antipathies is more likely when these antipathies are aggressive (Card & Hodges, 2007). Thus, the link between victimization and antipathetic relationships appears to be in large part due to being victimized by these antipathies, especially when these antipathies are prone to engaging in aggressive behaviors. So, a risk factor for victimization may be forming antipathetic relationships with potentially dangerous peers. Future research identifying means of preventing or resolving antipathetic relationships might therefore be valuable in reducing peer victimization.

Dyadic Behavioral Relationships

Although a thorough consideration of dyadic behavioral relationships involves numerous behaviors, the most relevant dyadic behavioral relationships to our current consideration are aggressor-victim relationships. Both self- and peer-reports of general victimization are associated with being the victim in numerous (rather than fewer) of these relationships (Card & Hodges, in press). Although predictable, this association is not a tautology (the alternative is that victims are involved in no more of these relationships than nonvictims, but that these relationships involve more frequent and/or salient victimization for more versus less victimized children). Because we consider these aggressor-victim relationships in further detail below, we do not discuss them in further depth here.

In addition to dyads defined by aggression and victimization, it is useful to consider relationships defined by defending or protection; that is, in which one child consistently and specifically protects another from victimization. There has been some preliminary consideration of these relationships, with results suggesting that most of these relationships are unidirectional rather than mutual (Veenstra & Huitsing, 2008). It is likely

that the absence of these defending relationships places children at risk for victimization, although research has not yet tested this proposition.

Victims' Subgroup Relationships

Examination of subgroups defined by liking (i.e., cliques or clans, as defined above) are consistent with our earlier review of dyadic friendships and victimization: victims are less likely to be in subgroups (i.e., "isolates") or to be in smaller subgroups than nonvictims (Boivin & Hymel, 1997; Salmivalli, Huttunen, & Lagerspetz, 1997; cf. Boulton, 1999, who found an association of victimization with playing in small groups but not with the diversity of individuals, defined as "networks" in that study). Further paralleling the literature on friendships, victims' subgroups are often comprised of other victimized children (Salmivalli et al., 1997). Surprisingly, Salmivalli and colleagues (1997) found that male victims (with a nonsignificant trend in this direction among female victims) have more defenders in their networks than expected; this finding might suggest that victims attempt to find protectors within these subgroups (or that defenders seek out those in need), and it is interesting to speculate whether their presence would predict decreases in victimization longitudinally.

Consideration of subgroups based on reputations, or crowds (i.e., such as jocks, brains, etc.; see Brown & Klute, 2003), in relation to peer victimization is limited. However, La Greca and Harrison (2005) considered rates of victimization of individuals within high-status (jocks, populars) versus low-status (burnouts, alternatives) crowds. Surprisingly, these authors failed to find associations between crowd status and peer victimization. Nevertheless, further investigation of this potential link is important. More precise examination of specific crowds (rather than aggregation into high or low status) may reveal specific associations. Furthermore, even if mean-level differences in victimization are not found between crowds, it may be useful to consider the aggressor-victim relationships that exist within and between crowds.

An important additional possibility in considering victims' subgroup relations, which distinguishes this focus from that of dyadic relationships, is consideration of network positions. This consideration asks whether victims are central versus peripheral within their networks, as an index of status within that particular subgroup. This consideration has received little empirical attention. There is some evidence that aggressors occupy central positions within their subgroups (Gest,

Graham-Bermann, & Hartup, 2001), especially in subgroups of highly aggressive individuals (Wright, Giammarino, & Parad, 1986). However, we are not aware of any studies that have considered the extent that victims are central versus peripheral in their networks. This is clearly an important future direction for research, preferably within a longitudinal framework so as to illuminate whether subgroup position is a risk factor or a consequence of peer victimization.

Victims' Larger Peer Group Relationships

Peer Acceptance and Rejection

Children's peer acceptance refers to how well-liked they are by their peers, whereas peer rejection refers to how disliked they are by peers. Both are typically computed as the total number (or proportion) of liking and disliking nominations, respectively, that a child receives from all of his/her peers. As might be expected, victimized children tend to have low levels of peer acceptance and high levels of rejection (for reviews see Card et al., 2007; Rodkin & Hodges, 2003). In other words, the average affect of the peer group toward victims is of little liking and considerable disliking. Longitudinal research indicates that this poor group status is a risk factor for increasing victimization (e.g., Boulton, 1999; Hanish & Guerra, 2000; Hodges & Perry, 1999; Ladd & Troop-Gordon, 2003; Ladd et al., 1997; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999), likely because potential aggressors are aware that they will receive little punishment, and perhaps reinforcement or support, from the peer group for aggression against these targets. At the same time, victimization also predicts peer rejection and low acceptance over time (Boivin, Hymel, & Bukowski, 1995; Boulton, 1999; Hodges & Perry, 1999; Ladd & Troop-Gordon, 2003). Thus, as with an absence of friendships, victimization and poor peer group status appear to act in a cyclical, mutually influential manner whereby some children become trapped in a pattern of abuse and peer group disregard.

Peer Group Behavioral Networks

Early views of victimization posited a "mobbing" phenomenon, in which the entire collective of the peer group targeted victimized children (e.g., Lorenz, 1966; Pikas, 1975; for reviews see Olweus, 2001; Schuster, 1996). Although this view has been refuted (e.g., Olweus,

1978), it is still valuable to consider the aggression-encouraging cognitions toward victims that are held by the peer group. Perry, Williard, and Perry (1990) found that most peers (not just aggressors) hold positive expectations (for rewards, signs of pain and suffering, and unlikely retaliation) for aggression toward victimized children. Although these aggression-encouraging cognitions are likely to only motivate some children to enact aggression toward the victims (see Hodges & Peets, this volume), their presence in even nonaggressive peers suggests an important role of the peer group. Peers who do not themselves engage in aggression toward victims may still view this aggression as understandable and may therefore be more likely to condone aggression toward these targets. Further research considering the actual reinforcement versus punishment the peer group provides for aggressors targeting what are considered acceptable victims is needed to further illuminate the group behaviors that contribute to peer victimization.

AGGRESSOR-VICTIM RELATIONSHIPS

Having considered a variety of levels of victims' social networks, we now focus on a specific behavioral relationship central to understanding peer victimization: the aggressor-victim relationship. Next, we describe the importance of focusing on these relationships, the features of these relationships, and speculate how they are embedded within larger social networks.

The Importance of Aggressor-Victim Relationships

Most research on aggression and victimization has considered individual differences in aggression or in victimization, identifying the antecedents and consequences of a child enacting more or less aggression or of a child being more or less victimized. However, given that any act of aggression necessarily involves at least two individuals, intuition suggests that it is important to consider the relationships that exist between specific aggressor-victim pairings (see Card, Isaacs, & Hodges, *in press*; Cohen, Hsueh, Russell, & Ray, 2005; Pierce & Cohen, 1995).

This intuition is supported by a limited body of empirical work. Coie and colleagues (1999) observed aggression within 3rd-grade boys' laboratory-based play groups. These authors used social relations modeling (see Kenny, 1994) to partition the variability of aggression

occurrences into individual differences in aggression, individual differences in victimization, and between-dyad differences. Their results indicated the presence of stable pairings of aggressor-victim relationships, which accounted for as much variance in the occurrence of aggression as individual differences between potential victims and more variance than individual differences in tendencies to enact aggression. Subsequent work has identified the presence of these relationships in naturalistic school-based settings (Card & Hodges, *in press*; Veenstra et al., 2007). For example, Card and Hodges (*in press*) conducted similar social relations model partitioning of same-sex aggression and victimization within middle schools, finding that 70%–80% of the occurrence of aggression is accounted for by specific aggressor-victim relationships.

In sum, both intuition and empirical evidence indicate the importance of considering dyadic aggressor-victim relationships. Although this approach has only been used in a small number of studies, we next consider the features of these relationships.

Features of Aggressor-Victim Relationships

One of the most basic questions regarding aggressor-victim relationships is the extent to which they are unidirectional versus mutual. The evidence is mixed in this regard. The earliest study to provide an answer relied on laboratory play groups of unacquainted boys (Dodge, Price, Coie, & Christopoulos, 1990), finding that unilateral dyads were about twice as common as mutually aggressive dyads. Coie and colleagues (1999) were able to find dyads of boys engaging in mutual aggression in school (based on teacher ratings) for inclusion in their play groups, but did not report the degree of mutuality (i.e., dyadic reciprocity coefficient from the social relations model; Kenny, 1994) of aggression observed in the playgroups. Veenstra and colleagues' (2007) results regarding naturalistic (i.e., school-based) aggression and victimization were inconclusive in failing to find a significant positive or negative reciprocity coefficient. However, Card and Hodges (2007) found that less than 3% of aggressor-victim dyads were mutual; the vast majority (over 97%) were unilateral. In sum, the evidence so far suggests that aggressor-victim relationships are more often unilateral than mutual, although this conclusion is tentative. Future research should further investigate the unilateral versus mutual nature of these relationships, especially considering the contexts in which each type is more or less likely.

A second important feature of aggressor-victim relationships is their overlap with other types of relationships, such as affective relationships. Aggressor-victim relationships are more likely to overlap with antipathetic relationships than with either friendships or neutral acquaintanceships (Card, 2007; Card & Hodges, 2006; Peets et al., 2008a). At the same time, this overlap is not complete. To illustrate, Card and Hodges (2006) found that 35% of antipathies victimized them; given that almost all aggressor-victim relationships in this study were unilateral, this means that almost 70% of antipathetic relationships were also aggressor-victim relationships. But about 30% of antipathetic relationships were not also aggressor-victim relationships (for similar results see Card, 2007), and it is not entirely clear what sort of interactions characterize these nonaggressive antipathetic relationships. Moreover, about 6% each of neutral acquaintances and friends were reported as sources of victimization, so a substantial number of aggressor-victim relationships co-occur in relationships marked by neutral or even positive affect (see also Grottpeter & Crick's 1996 study of aggression within friendships).

Recognizing the incomplete overlap between aggressor-victim and affective relationships is important for two reasons. First, this recognition suggests the importance of seeking multiple explanations for each type of relationship. Second, there is evidence that the interaction of these two relationships systems is especially important to understanding the risk factors and consequences of victimization experiences. Building upon findings that children hold more aggression-encouraging cognitions toward antipathies than other peers (Peets et al., 2008a; Ray & Cohen, 2000; Sumrall, Ray, & Tidwell, 2000) and associations of target-specific social cognitions with target-specific aggression (i.e., aggressor-victim relationships; Hubbard, Dodge, Cillessen, Coie, & Schwartz, 2001; Peets et al., 2008a), it appears that aggression-encouraging cognitions are especially likely to translate into aggressive behavior with antipathetic relationships (Peets, Hodges, & Salmivalli, 2008b; see also Hodges & Peets, this volume). Similarly, victimization within antipathetic relationships is more strongly associated with internalizing problems and low self-concept than is victimization within other relationships (Card & Hodges, 2007). Although these studies provide only concurrent evidence, thus limiting our ability to conclude antecedent-consequence relations, it appears that the joint occurrence of aggressor-victim and antipathetic relationships has unique antecedents (aggression-encouraging cognitions) and consequences (maladjustment).

Aggressor-Victim Relationships within the Larger Peer Context

Although we have argued the importance of studying aggressor-victim relationships (rather than only the individuals involved), these dyadic relationships are embedded within the larger social network. Therefore, to fully understand peer victimization, we must consider not only the individuals and aggressor-victim dyads, but larger subgroup and peer group contexts.

As an initial step in this direction, we might consider various triadic relationships. Card and Hodges (2006) considered patterns of two friends aggressing against a common victim. They found that friends are similar in their targets for aggression (beyond similarity in general aggression), and that this similarity was more pronounced for aggressive than nonaggressive children (suggesting that aggressive children especially value their friends aggressing against peers with whom they have aggressor-victim relationships). The authors did not investigate whether being victimized by two friends was more predictive of maladjustment than being targeted by individuals, but this is a possibility. Clearly, many more triadic configurations could be considered, such as two friends who are victimized by a common aggressor, members of an aggressor-victim relationship both attempting to befriend a powerful third person for assistance or protection, or two antipathies competing in their victimization of a third peer. These triadic possibilities have received no empirical research, but represent potential bridges between dyadic aggressor-victim relationships and larger subgroup and group levels of the peer ecology.

Moving from dyadic to triadic relationships introduces many complexities in conceptualization, methodology, and data analysis (reviewed below). So, it might be expected that moving to higher levels of social complexity, such as subgroups and larger peer groups, introduces even more complexity. This is true, but should not deter researchers from investigating these phenomena. For example, it is important to consider whether being victimized by members within versus outside of children's subgroups might entail different risk factors and consequences. Recent work by Pronk and Zimmer-Gembeck (2008) has shown that experiences of relational victimization (e.g., hurtful exclusion, spreading rumors) can be distinguished into "connected" and "disconnected" forms that occur within versus outside of subgroups. Interestingly, the former (at least when assessed via self-reports) is positively associated

with social prominence, such that high social status individuals are more likely to be the victims of within-group relational victimization (this is in contrast to the rejection and low acceptance associated with traditional measures of victimization reviewed earlier). These results suggest the importance of considering the way that aggressor-victim relationships are embedded within larger subgroup structures, a consideration that is ripe for future investigation.

DEVELOPMENTAL CONSIDERATIONS

To this point, our conceptualizations of the social context in which victim/bully problems take place have been static with regard to development. For the most part, we have not attempted to frame dyadic relationships and social networks within the guiding heuristic of developmental theory. However, significant reorganizations in the structure of the school peer group accompany the transition from childhood to adolescence. These changes will be critical to consider as we move toward the elaboration of more developmentally specific models.

Perhaps as a reflection of growing cognitive and emotional sophistication, there are notable shifts in the role of friendship with the beginning of adolescence. Over the course of development, friendships evolve from an orientation toward activities and concrete features to an emphasis on abstract components such as intimacy, warmth, and trust (Berndt & Perry, 1990). As this process unfolds, friendships take on increased emotional significance; indeed, during adolescence, friends can exert an even more powerful influence than parents or other close family members (Brown, 1990). As noted earlier, friendship has been viewed as a potential buffering mechanism by researchers who have focused on peer group victimization during middle childhood (Hodges et al., 1997, 1999; Schwartz et al., 1999), but these relationships may have even greater significance for victimized youths during the adolescent years.

From a less adaptive perspective, friendships with maladjusted peers can begin to have an increasingly pernicious influence on socialization. Most notably, by adolescence, affiliations with antisocial peers become a central factor in the development of disruptive behaviors (Lahey et al., 1999). Such friendships may also predict negative attitudes toward school and resulting academic disengagement (Vitaro, Brendgen, & Wanner, 2005). Youths who have experienced frequent mistreatment by peers could be particularly vulnerable to such effects. We would expect a child

who is already experiencing stressful experiences at school to be especially open to socializing pressures toward withdrawal from the academic environment.

Less is known about changes in the structure of antipathetic relationships across development. As a result, the potentially changing overlap between antipathetic and aggressor-victim relationships is not yet known. Antipathetic relationships are social context for peer victimization by the later years of childhood (Card & Hodges, 2007), but it is not yet clear if such effects persist into adolescence, particularly given the likelihood that adolescents will have more options than children for avoiding peers whom they do not like (Brown, 1990).

Another important set of developmental transitions involves the increased prominence of larger peer group structures. Children's friendships are often based on practical factors, such as being in the same elementary school classroom, and are not necessarily embedded in larger peer networks (Kupersmidt, DeRosier, & Patterson, 1995). In contrast, adolescents are more likely to interact with friends in the context of cliques of reciprocated affiliations between members (Brown, 1990). Adolescents also derive part of their social identity from association with larger "crowd" structures in the school peer group (i.e., clusters of peers that are characterized by a shared social reputation). Thus, an understanding of factors that promote vulnerability to victimization in later stages of development will need to move beyond an exclusive focus on dyadic relationships and toward a more explicit concern with these larger social structures.

FUTURE DIRECTIONS FOR RESEARCH

Our goal in this chapter has been to illuminate associations between peer victimization and various aspects of children's social networks. In some areas, we are able to draw clear conclusions, but in many others, our review has pointed to where the limits of our knowledge lie. These limits suggest several important directions for future research.

Unanswered Questions Regarding Associations Between Victimization and Social Networks

The first limitation to our knowledge highlighted in this review is the tendency for the extant research to focus on some aspects of social networks

at the expense of others. It is clear that more attention has been placed on the individual and larger group levels than at the dyadic level, and very little research has considered the subgroup level. At the dyadic level, there has been far more research of positive affective relationships (i.e., friendships) than either negative affective relationships (i.e., antipathetic relationships) or behavioral relationships (e.g., aggressor-victim relationships). Greater attention to these neglected aspects of social networks holds promise in identifying unique contributors to peer victimization.

A second limitation is the tendency to study each aspect of children's social networks in isolation. Exceptions to this statement exist; for instance, several studies (e.g., Abou-ezzedine et al., 2007; Hodges & Perry, 1999; Schwartz et al., 1999) have shown that personal and interpersonal risk factors interact in predicting victimization; Ladd and colleagues (1997) showed that dyadic- and group-level liking (i.e., friendships and peer acceptance) uniquely predict victimization; and we reviewed evidence that the overlap of antipathetic and aggressor-victim relationships has unique correlates. These investigations of multiple levels or components of social networks in relation to victimization represent exceptions, however, to the more general practice of investigating each in isolation. Given the large but imperfect overlap among various aspects of social networks, it is important for future research to consider the unique, additive, and interactive effects each has on peer victimization.

Full consideration of various aspects of social networks is important, but we should keep in mind that this focus only considers the peer microsystem. There is little doubt that peer victimization influences and is influenced by other microsystems, such as the contexts of families (see Perry, Hodges, & Egan, 2001) and local communities (Schwartz & Proctor, 2000). Similarly, broader mesosystemic, exosystemic, macrosystemic, and chronosystemic (see Bronfenbrenner, 1979; Bronfenbrenner & Crouter, 1983; Card, Little, & Bovaird, 2007) factors need to be considered. A complete understanding of victimization requires consideration of each contextual level, as well as their mediational and moderational relations to peer victimization.

Overarching all of these future research agendas is the need for more longitudinal and experimental research. As was highlighted in our review, our knowledge of the associations between peer victimization and social networks is too often based only on concurrent naturalistic studies. These studies are informative in identifying links between victimization and social networks, but do not indicate antecedent-consequence relations. Such directional relations can be identified through a combination

of naturalistic longitudinal (e.g., Schwartz et al., 1998, 1999) and experimental (e.g., artificial playgroup; e.g., Schwartz, Dodge, & Coie, 1993) research. Where naturalistic longitudinal research has been conducted, we often see complex reciprocal directions of influence; we suspect that this is the case for most links between victimization and social networks. We also emphasize that future longitudinal research needs to consider a wider variety of time spans of influence. Too often longitudinal research is designed based on arbitrary time spans (e.g., 1-year intervals) with little theoretical rationale; future research should more carefully consider the expected time span of influence between victimization and social networks, as well as systematically consider much shorter (e.g., day-to-day) and longer (e.g., several years) spans (Card & Little, 2007). Although naturalistic longitudinal research is valuable in investigating peer ecologies, these works need to be supplemented with experimental research that allows for tighter control of the confounding overlap among multiple levels of social networks; artificial playgroups offer much promise in this pursuit (Schwartz et al., 1993).

Finally, we have emphasized basic research on victimization and social networks, but future work is needed in applying this knowledge toward prevention and intervention efforts to help victims. One of the most effective victimization reduction programs currently available is Olweus's (1993) comprehensive approach, which explicitly targets the system in which victimization occurs. However, even this approach is only inconsistently effective (see Smith, Schneider, Smith, & Ananiadou, 2004), and it is unclear what components of this approach are necessary or sufficient. The limits of this approach indicate the importance of building and applying our empirical understanding of victimization and social networks toward developing and evaluating more effective methods of reducing peer victimization.

Challenges in Studying Victimization and Social Networks

Although we believe that further investigation of social networks and victimization is critical, we recognize the challenges of this pursuit. One challenge is that many researchers have not considered the breadth of social networks in children's peer ecologies, so questions regarding the interplay between victimization and these networks are simply not asked. Even for those asking these questions, however, there are methodological and data analytic challenges.

In order to measure the connections between victimization and social networks, it is necessary to design studies that capture these phenomena. For instance, sociometric measures and procedures for measuring and computing peer rejection are well known, but we know less about whether these measures can simultaneously be used to measure antipathetic relationships (i.e., reciprocal dislike nominations) or if distinct items are needed (e.g., items specifically identifying enemies). Similarly, whereas measures of individuals' behaviors (e.g., aggression) and experiences (e.g., victimization) are abundant, there are fewer established, psychometrically evaluated measures of aggressor-victim relationships (cf., Card & Hodges, *in press*). In short, the study of social networks requires specific measures of these networks, which are less common and generally less thoroughly evaluated than measures of individual differences.

Another challenge, even after one has collected social network data, is in the analysis of these data. Traditional statistical procedures assume that individual cases (e.g., children) are independent of one another, but this assumption is clearly violated when one is studying networks of interdependent individuals. Fortunately, there exist a variety of analytic options for interdependent data, such as actor-partner interdependence models, social relations models, and various social network analysis techniques for identifying subgroups (see Card, Selig, & Little, 2008; Kenny, Kashy, & Cook, 2006). Unfortunately, these techniques are not widely known to researchers investigating peer victimization. An important future direction is for these investigators to learn and apply these analytic techniques to analysis of interdependent data. Equally important, we will need to adapt these techniques to meet the unique demands of this line of research (e.g., extension to longitudinal analysis).

CONCLUSIONS

Despite the critiques and need for future research identified in the previous section, it is clear that recent research has shed considerable light on our understanding of the connections between peer victimization and children's social networks. Children's victimization is clearly influenced by dyadic, small group, and larger peer group affective and behavioral structures, and these structures are in turn influenced by experiences of peer victimization. Attention to these social networks provides a greater understanding of peer victimization than can be obtained through studying individual victims in isolation. More generally, we believe this focus

offers the possibility of better understanding the person X peer environment interactions that affect, are affected by, and can be used to prevent peer victimization among children.

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15

Using Social Network Analysis as a Lens to Examine Socially Isolated Youth

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Considerable evidence attests to the importance of peer relationships in the social and emotional development of youth across the lifespan (Cairns & Cairns, 1994; Hartup, 1983). Among preadolescent children, social relationships provide opportunities for identity development, teach perspective-taking and empathic skills, and provide emotional support (Eisenberg, Fabes, & Spinrad, 2006), while among adolescents social relationships help youth acquire skills and competencies that are relevant during the final school years and life beyond graduation (Giordano, 2003). Most telling of this importance is the relationship between social difficulties and the related negative sequelae, including anxiety and depression (Boiven, Hymel, & Bukowski, 1995; London, Downey, Bonica, & Paltin, 2007), academic difficulties (Gazelle & Ladd, 2003; Wentzel, 2005), and low family and school satisfaction (Gilman & Huebner, 2007). Further, the absence of social connections often leaves many youth vulnerable to key emotional and physical supports—the very mechanisms that protect against negative social experiences such as peer harassment and victimization (Dixon, 2007; Wentzel, Baker, & Russell, in press).

Much of the research investigating outcomes related to peer relationships has been conducted through the perspective of friendship dyads or close companionships. However, an increasing number of studies have extended their focus beyond analyzing discrete, close

friendships to examining similar and dissimilar characteristics of youth within the larger peer network (e.g., Cairns, Xie, & Leung, 1998; Cairns, Leung, Buchanan, & Cairns, 1995; Gest, Farmer, Cairns, & Xie, 2003). Research consistently demonstrates the power of direct friendships and indirect peer affiliations to influence a variety of outcomes such as academic achievement (Crosnoe, Riegle-Crumb, Field, Frank, & Muller, 2008), positive self-identity (McFarland & Pals, 2005), involvement in substance use (Ennett, Bauman, Hussong, Faris, Foshee, & Cai, 2006), and early and unprotected sex (Romer et al., 1994). Thus, researchers have turned to social network analysis (SNA) as a means to investigate aggregate dyadic data within the larger peer network. The use of SNA, which treats the dyad (rooted within the larger relationship network) as the fundamental unit of analysis, allows researchers to examine the presence (or absence) of all direct and indirect affiliations, which helps discern patterns of social embeddedness and social influence (Ennett, Bauman, Hussong, Faris, Foshee, & Cai, 2006).

There have been many applications of SNA to examine specific subgroups within networks. Much attention has focused on socially rejected children, given the robust relationship between social rejection and bullying and/or peer victimization (Espelage, Hope, & Henkel, 2003). Rejected youth, characterized by their disruptive behaviors, often are disliked by their peers and become banished to the fringes of the larger network. These youth tend to form subgroups that are often comprised of other youth who are socially rejected (Dodge et al., 2003; Light & Dishion, 2007), thus reinforcing antisocial tendencies (Catanese & Tice, 2005; Deator-Deckard, 2001; Farmer, 2007; Ladd & Troop-Gordon, 2003). Nevertheless, that rejected youth can and often do form alliances within the network still allows them to receive benefits associated with social connections (such as they are), including receiving social approval from, and maintaining a degree of social influence over, others (Brown, 1996; Hughes, Cavell, & Prasad-Gaur, 2001; see also Knowles & Gardner, 2008).

Of specific interest in this chapter is another subgroup of youth, who do not display antisocial characteristics but nonetheless also find themselves on the fringe of the larger peer network. Whether stemming from internal characteristics (social anxiety or shyness) or due to other factors beyond their control (having a physical or cognitive disability), a common factor for all of these youth is that they lack friends and have few connections with others. Until rather recently, it was assumed that socially isolated youth, given their lack of overt, antisocial behaviors,

were not susceptible to psychological distress or interpersonal difficulties (Rubin & Coplan, 2004). Granted, not every isolated youth will experience problems, but evidence indicates that social isolation is significantly associated with psychological and psychosocial maladjustment (Rubin, Burgess, Kennedy, & Stewart, 2003; Miller & Coll, 2007; Wichmann, Coplan, & Daniels, 2004), and peer victimization (Card & Schwartz, this volume; Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006). In general, youth who are isolated within their social network do not receive essential protective and emotional resources provided by peers.

The application of SNA may have some unique advantages when examining socially isolated youth. As noted in Hanish and Rodkin (2007), SNA makes it possible not only to examine specific friendship dyads but also to “determine the overall density of the peer network, how central children are within their networks, the various structural configurations that characterize social groups, and which peers make up individual children’s networks” (p. 3). In the case of socially isolated youth, SNA would allow researchers to examine specific socialization processes that prevent such youth from having greater peer connections. Moreover, there is often a sharp division between how youth are perceived within smaller subgroups and how they are perceived within the larger overall network. That is, peers may often serve different but complementary roles; there may be instances where youth identified as having few relationships to others (if examining friendship dyads) could maintain indirect and complementary connections with others in the larger social network (Degirmencioglu, Urberg, Tolson, & Richard, 1998; Hoza, Bukowski, & Beery, 2000). Social network analysis is one method that can examine social relationships at both the lowest (dyadic) level of the network, as well across the entire network itself.

In this chapter, we discuss how SNA can be used to examine youth identified as isolates within the larger peer network. Although the use of SNA to examine peer relationships dates to the very origin of the field (Freeman, 2004), interest waned among child development researchers until recently (Hanish & Rodkin, 2007). The advent of more sophisticated quantitative statistical techniques and computer graphics packages has led to a proliferation of studies in recent years (Borgatti & Foster, 2003). Nevertheless, current applications of SNA to study youth development in general, and socially isolated in youth in particular, are relatively few. As a consequence, published findings are limited to fairly broad and descriptive accounts.

The chapter begins by providing a brief overview of SNA. An in-depth discussion of the method is beyond the scope of this chapter. Readers interested in more comprehensive overviews can consult Degenne and Forse (2006), De Nooy, Mrvar, and Batagelj (2005), and Carrington, Scott, and Wasserman (2005) in general, and Cairns, Leung, and Cairns (1995) and Rodkin and Hanish (2007) for specific applications to youth. Following this overview, the chapter will review what is known of socially isolated youth, as examined from the perspective of SNA. The final section of the chapter will review empirically based interventions that may help isolated youth form more meaningful and positive connections with peers.

SOCIAL NETWORK ANALYSIS: AN OVERVIEW

Of the many methods to examine youth networks, sociometric procedures are the most common, in which respondents are usually presented with a list of students and simply asked to rate their peers on a variety of dimensions such as time spent with each other, friendships, closeness, and others. Smaller studies often use unlimited nominations, while in larger studies (to reduce the response burden) respondents may be asked to list 3 to 5 of their closest friends and then to rate these friends on various dimensions. Whatever the choice, the data is then analyzed to determine the pattern of endorsements between raters. Any endorsement given by the rater to the ratee constitutes a relationship, or *tie* (which may or may not be reciprocated).

The network itself consists of all individuals of interest to the researchers (e.g., youth at-risk for a negative outcome). Broadly speaking, social network analysis is usually conducted either at the individual- or at the whole-network level. At the individual-network level, the researcher examines the rater's network of direct connections as well as the connections among the rater's friends. At the whole-network level, researchers go beyond examining specific individuals to examine *all* of the relationships among members of the network. For example, researchers interested in specific subgroups within the network might focus on identifying ties among three or more individuals. Some of these subgroups may be exclusive, that is, not having many ties to peers in other subgroups—a phenomenon sometimes observed among socially rejected youth (Light & Dishion, 2007) and along gender/ethnic composition lines (Lee, Howes, & Chamberlain, 2007). Less exclusive

subgroups have individuals who have connections to peers from other subgroups. Individuals having such connections are labeled as *bridges*. *Isolates* are individuals within the network who have no ties to others, and *peripherally isolated members* have some outgoing ties, but few incoming ties. Recognizing that social groups become more differentiated with age, some studies using older youth have separated isolates from peripheral members. For example, among a sample of young children, Hanish et al. (2007) and Lee et al. (2007) classified any youth with two or less ties simply as isolates. On the other hand, among a sample of adolescents, Fang, Li, Stanton, and Dong (2003) differentiated a “type 1” isolate (adolescents with no tie to any other peer in the network), from a “type 2” peripheral subgroup (an adolescent with a nonreciprocated tie). The authors further differentiated these subgroups from additional subgroups that were not integrated within the larger network (such as a single dyadic relationship, in which a pair of adolescents had only one reciprocated tie).

Regardless of method used to identify isolated youth, many metrics can be used to investigate the structural relations of the complete network. One common metric is to examine the total number of ties that youth make with each other. Although it can be assumed that a youth who endorses a peer would receive a reciprocal endorsement, such is not always the case; even the most stable networks have nonreciprocal relationships (Cairns et al., 1995). In any event, the more ties that an individual has, the more central he or she is within the peer network (Brass, 1984). These individuals have greater access to their peers, which means that it is easier for them to transmit and receive information to others (Freeman, 1979). Further, they are less likely to be dependent on a particular source and have the advantage to call on the full resources of the network if necessary. Conversely, the isolates’ less centrally located position would restrict their access to the entire array of network resources.

Another commonly used metric focuses on the general level of linkage of individuals in the network. Two commonly used network metrics are centralization and density. Centralization refers to the extent to which one person is at the center of the network. For example, one network may be highly centralized, with just one or a few individuals receiving most of the nominations. Or, the network may be relatively decentralized, with communication occurring in clusters. Density examines the percentage of ties within the network (relative to the possible number of ties), which determines how cohesive the entire network is. Very high densities are rare, even in small networks (Scott, 2007); some

youth will have their endorsements returned in kind while others will have very few.

Figure 15.1 provides a hypothetical and graphical example of 15 youths who were presented with a roster of students and asked to rate each peer on the following question: “Write the name of the classmates that you would say you most hang around with.” Although meant to illustrate the concepts of SNA listed above, empirical studies using the same methodology have been applied to investigate substance use (Ennett et al., 2006), cigarette smoking (Ennett & Bauman, 1993; Snijders & Baerveldt, 2003), ethnic composition of a peer group (Lee et al., 2007), and aggression (Vermande, van den Oord, Goudena, & Rispen, 2000). In this example, double-headed arrows indicate reciprocal endorsements (i.e., each member of the dyad reported that they would hang around with each other). Single-headed arrows indicate nonagreements. For example, Mark endorses Carl as someone he hangs around with, although Carl does not reciprocate this view.

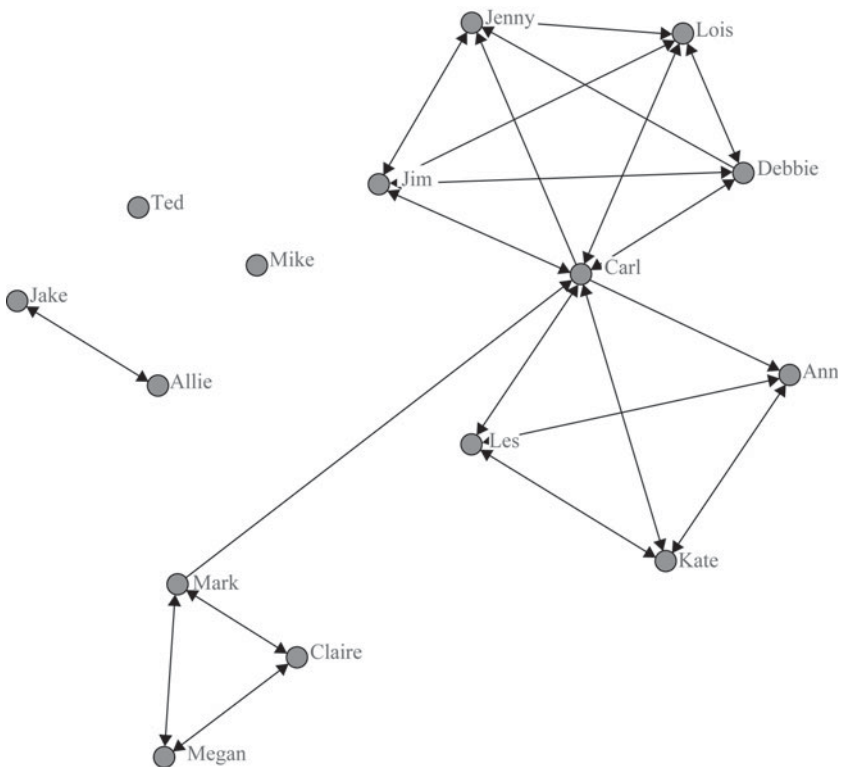


Figure 15.1 Hypothetical social network analysis of 15 youth.

Although statistical procedures would ordinarily be the next step in examining the structure of the network, we limit our discussion here to a visual inspection of the data. The network appears moderately dense, with a number of reciprocal relationships but also a few nonreciprocal ties and some individuals with no ties at all. In this network, all individuals are identified either as (a) members of a subgroup, (b) bridges between subgroups, (c) dyads separate from the larger network, or (d) isolates. Carl appears to be most central in the network, as this youth has the most incoming and outgoing ties to others. Further, there appear to be multiple subgroups within the network: Carl, Debbie, Jim, Lois, and Jenny; Carl, Les, Ann, and Kate; Megan, Mark, and Clare. The tie between Carl and Mark would represent a bridge in the network. Finally, Ted and Mike, and to a relatively lesser extent Jake and Allie, would be identified as socially isolated youth.

Interpretations of this data may lead to a number of possible implications. For example, Carl appears to be critical to the connectedness of the network; if he is removed, three subgroups of individuals will have no ties to each other. This individual has the capacity to receive and transmit information to different subgroups. Should this sample consist of youth considered as at-risk for some negative outcome, a proposed intervention may consider Carl as a key individual in the design. For example, if the goal is to prevent the transmission of sexually transmitted diseases, and if Carl is sexually active, one strategy would be to sever ties between Carl and those he rated. Or, the intervention may consist of training Carl as a “peer educator,” taking advantage of his influential role in the network to convince peers to adopt safe sex methods. Such approaches have been considered or used for unprotected sex and/or drug use (Pearlman, Camberg, Wallace, Symons, & Finison, 2002; Rice, Milburn, & Rotheram-Borus, 2007). As a further example, should this sample consist of subgroups of youth who have a high degree of conflict, interventionists may wish to use Carl’s position as a way to leverage positive intergroup relationships. Nevertheless, interventions that solely target Carl would be limited given that he is not an integral component of other relationships in the network. For example, Jake and Allie form a dyad that does not involve Carl, and Ted and Mike would not receive essential information from any other source.

APPLICATIONS OF SNA TO SOCIALLY ISOLATED YOUTH

The illustration in the last section, particularly as it pertains to Jake, Allie, Ted, and Mike, highlights the potential importance of SNA as

it applies to youth isolated from the larger peer group. However, the nature and dynamics of social networks are hardly static; many connections and friendships are formed and broken more frequently than once assumed (Berndt, 2002; Degirmencioglu et al., 1998). Longitudinal analyses, which help account for the stability and complexity of youth interactions, find that many youth move in and out of stable relationships (e.g., Hartup & Stevens, 1997). Knoke and Yang (2008) formulated some underlying social network assumptions that help explain why social connections form—and why some dissolve. These assumptions also help explain the origins of social isolation from a network (rather than an individual) perspective. This section will highlight and review research specific to two of their assumptions.

First, the strength of ties changes as opportunities to create new ties arise. Relations can and do change depending on a number of factors, including (among others) age, gender, and burgeoning interests that are not shared by the larger peer group (Berndt, 2002). Research analyzing friendship networks indicate that although there is high stability in networks among youth rating their best friends, there is less stability in secondary friendships (i.e., non-best friends) and social affiliations (Chan & Poulin, 2007; Degirmencioglu et al., 1998). In the case of socially isolated youth, it may be that a number of these youth do not form best friends but can create secondary friendships or alliances to peers in the larger network (but see Rubin et al., 2006). For example, in a two-year study of young children, Schneider, Richard, Younger, and Freeman (2000) found that peripherally isolated youth were more likely to form more social connections over time than their extremely withdrawn (and isolated) peers. One moderating influence may be the level of social skills displayed by isolates. That is, one may presume that peripherally isolated youth contain a modicum of social skills that may allow them to form a relationship with at least one other peer, whereas extremely isolated youth either lack or hesitate to use social skills in social situations (see Rubin & Coplan, 2004).

However, it is not clear whether changes in social competence themselves yield positive and additional connections in the peer network. Changing environmental conditions may also be a necessary component that helps facilitate social relationships (Margolin, 2007). For example, in a recent longitudinal study of over 1,300 elementary school students, Gazelle (2006) found that changes in classroom emotional climate (i.e., characterized by varying degrees of disruption, conflict, disorganization, and chaos) moderated the capacity of socially isolated children to form

relationships with students. Specifically, the results found that classrooms high (or low) on positive emotional climate could either negate (or worsen) the effects of social isolation (which was identified early in development) on social adjustment during the first two years of formal schooling.

A second and related assumption is that individuals within a given network change. Developmental psychologists have made a number of advances in understanding individual attributes that can lead to social isolation (see Rubin & Coplan, 2004). Nevertheless, individual attributes only partially explain why a youth becomes isolated. Dynamics of individuals within the larger network also contribute to the equation. Indeed, peer groups become influential to development “as soon as children are organized into collectivities” (Hanish & Rodkin, 2007, p. 12). In this regard, individual characteristics and group dynamics are reciprocal determinants of social isolation.

The interaction also helps explain why some youth become banished from the larger network either by their own volition, by a decision reached by members of the network, or sometimes both. Kenis and Knoke (2002) outlined how initial social connections eventually lead to group identity. Specifically, the structure of the network initially occurs from strategic alliances developed between individuals. The flow of information is altered as key alliances strengthen within the expanding network. In time, the network itself becomes relatively stable, and the identity of the network is associated with individuals at the center of the network (who form the greatest number of alliances) rather than those at the periphery. Very dense networks are advantageous because most members have reciprocal ties to all other members, and thus all members have full access to the network resources.

However, a potential downside of these networks is that conformity to behavioral and social expectations is quite high (Coleman, 1990). Over time, individuals whose beliefs and interests become discrepant with the prevailing views of the network face difficult choices. One choice is for the individual to ignore their burgeoning incompatible views to remain in conformity with the network. The other choice is to act on his or her interests, in which case the network itself may “impose a cost on the individual . . . such as barring him [or her] from receiving the network benefits” (Klick & Parisi, 2008, p. 1323). In most instances, the individual leaves his or her particular subgroup and creates or forges alliances with members of a subgroup. In other cases, the individual finds him/herself removed to the fringes of the network but establishes few (if any) alliances (see Williams, 2007a, for further discussion).

Although Knoke and Yang's (2008) second assumption was descriptive, supporting evidence is found in the developmental literature. For example, studies of "jocks" and "brains" (among other subgroups) find unique values and norms inherent within these groups (e.g., Barber, Eccles, & Stone, 2001), and psychological and interpersonal stress can occur when an individual begins to threaten these group norms (Adler & Adler, 1998). Clearly, the decision to break from a subgroup is inherently stressful (Baumeister & Leary, 1995), but there is increasing evidence to suggest that it may be easier for individuals in the network periphery to break away from a subgroup than those who are more centrally located. For example, McFarland and Pals (2005), following over 6,000 adolescents across a two-year time period, found that individuals more centrally located within the network were less likely to move out of their respective subgroup. Social isolates, on the other hand, reported greater levels of autonomy and greater satisfaction that they do not belong in reputational crowds. Thus, there was a higher probability that they could move around in the network without pressures to perform to one particular subgroup. The implications of these findings are particularly relevant with respect to network identities largely based on antisocial characteristics (such as illicit drug use or peer victimization). That is, in these particular cases, the ability to break away from the social group, even when faced with the prospect of "social death" (Williams, 2007b), may reflect social and emotional maturation, rather than evidence of psychological or social distress.

INTERVENTIONS WITH SOCIALLY ISOLATED YOUTH

Considering the number of negative outcomes related to youth who are on the fringes of the social network, studies have turned to interventions designed to help youth establish greater social connections with their peers. The primary model underlying why and how social isolation begins rests on the belief that isolated children, at the very beginning of their social development, lack appropriate social skills that are necessary for successful peer group interactions (Margolin, 2007). These poor interactions preclude the child's ability to elicit positive responses from their peers, which in turn leads to decreased peer interaction attempts in the future (Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999). Thus, many interventions have focused on instilling the child with foundational skills such as appropriate group entry strategies, developing an empathy

for others, and enhanced communication skills (Kennedy, 1990). Usually, these skills are individually taught through applied behavioral analyses, stimulus-response approaches, and other behavioral methods. The interventions have demonstrated effectiveness in enhancing social interactions. As one example, Fantuzzo, Manz, Atkins, and Meyers (2005) trained socially adjusted preschool children to model appropriate skills to their socially withdrawn, maltreated peers. The authors reported a significant increase in the interaction rates among this latter group.

However, to assume that social skills deficiencies are the sole reason for social isolation may be premature given that many social skill interventions often fall short of their intended goal (Evans, Axelrod, & Sapia, 2000). Studies suggest that some socially isolated youth possess adequate social skills necessary for successful peer interaction. For example, in a study of over 400 6th and 7th graders, Wentzel and Asher (1995) reported that children classified in the socially neglected (i.e., isolated) category actually possessed social competencies that were not acknowledged by their peers. Such findings may reflect the distinction between social competence versus social skills. That is, some neglected children possess appropriate social skills but for a variety of reasons either choose not to use them due to internal states such as anxiety (Harrist, Zaia, Bates, Dodge, & Pettit, 1997), or they have previously attempted to do so but were not socially reinforced for such behaviors (Younger & Daniels, 1992).

Further, individually and behaviorally based interventions may not directly address the entire larger social network in which the child is embedded. The classroom environment and overall school climate can do a lot to set the tone for positive social interactions that either promote inclusion or foster tolerance for social isolated youth. For example, one classroom intervention method that has been used to help socially rejected children used positive and reciprocal peer reporting (e.g., Ervin, Miller, & Friman, 1996; Harrist & Bradley, 2003). In this procedure, rewards are given to classmates after making direct, genuine, and positive comments regarding a targeted student's behavior. Ervin et al. (1996) reported that positive interactions significantly increased between a 13-year-old female and her classmates as a result of the intervention. While Ervin et al.'s (1996) intervention targeted a socially rejected child, such procedures may be beneficial for nonaggressive, socially isolated youth as well. For example, rewards given to classmates after making positive comments concerning the interactions of an isolated student may help increase interaction rates. Such

a transaction may help all parties involved: (a) the isolated student by receiving positive social feedback regarding his or her interactions, and (b) the isolated student's classmates for receiving positive rewards after making such comments, which may in turn enhance their perceptions of the neglected child.

Teachers can model appropriate and positive social interactions, highlight and praise positive behaviors demonstrated by students and other adults, help students problem solve interpersonal conflict when it occurs within the classroom, and identify and intervene when early problems become evident before social isolation becomes entrenched or is associated with negative outcomes such as lowered self-esteem. Teacher coaching programs that model appropriate social interactions to isolated youth have been attempted and have reported success, at least among preschool children (Hendrickson, Gardner, Kaiser, & Riley, 1996).

Students should also be given opportunities to interact with peers in less structured environments within the school, such as during recess, group activities within class, and afterschool programs, especially under the leadership of skilled and sensitive adult facilitators. To this end, participation in structured extracurricular activities (SEAs) may also help promote social connections among isolated youth. Such participation would provide opportunities for the child to be exposed to a variety of peers with various social interactive skills, which provide appropriate social modeling. Further, extracurricular activities may allow the isolated child to excel in an activity, thereby increasing their exposure (and their perceived social value) to their peer group (Sandstrom & Coie, 1999). Finally, participation in extracurricular activities would allow the isolated child to become a part of a positively valued peer opportunity, which would allow the child's peers to see him/her in a new positive light. These new perceptions may allow the child to develop greater confidence in relating to peers.

Unfortunately, many of the above suggestions are speculative. Rarely have interventions specifically targeted socially isolated youth, and even more rarely have such interventions targeted isolated adolescents. School-based interventions to promote socioemotional adjustment to all youth in general, and isolated youth in particular, runs counter to the current movement that focuses almost exclusively on preacademic and academic skills. Yet such attention belies the reality that in the absence of socioemotional adjustment, children learn poorly; career success is probably more related to positive social skill acquisition than to a modest incremental knowledge level in a particular subject area (Noddings, 2003). Mental

health professionals within the school system and the broader community can play a critical role in providing professional development opportunities to teachers and other school staff and helping to develop and implement socioemotional development programs that target isolated youth.

Nevertheless, for any intervention to yield optimal benefits, it must build upon and be reinforced by efforts of parents and other caring adults outside of the context of school. Parents and other family members play a critical role in promoting the social development of their children in the same manner as described above for teachers, although they often are not as conscious or deliberate in their attempts to promote such skills. Playdates for young children, discussions with their children about how to make friends and negotiate peer conflicts, and selection of positive youth development groups (e.g., athletic teams, girls' or boys' clubs, etc.) may be opportunities to create positive social groups to practice and learn these skills, provided they are led by sensitive and skilled adult facilitators. Mental health providers, pediatricians, and other adult supports should encourage parents to acquire the necessary skills and place priority on making this a conscious part of parenting. Parents should also critically evaluate the attention given to this aspect of their children's formal education in preschool/school and select schools based on the degree to which they prioritize and deliver this education. If it is not being done well by schools, parents should be advocating for change—whether this be through parent-teacher conferences, discussions with the school administration, conversations with the school coaches or music program directors, or through enrollment in alternative schools. Parents should reach out to school staff, teachers, and school mental health professionals as indicated, for assistance if there are any concerns about their children's abilities to initiate and maintain friendships, rather than wait to be contacted by the school when problems develop after social isolation is observed.

In summary, the use of SNA helps explain the initial stages, maintenance (and possible cessation) of social isolation, taking a network perspective. Nevertheless, applications of SNA to study this population are only in the beginning stages. It should also be emphasized that the method should be used in conjunction with ongoing investigations that examine personal attributes and external factors (such as family relationships) to explain how and why youth move to the fringes of the social network. Social network analysis has many methodological advantages described at the beginning of the chapter, most notably the ability to examine social relationships at the dyadic level and across the entire network. However,

there are a number of challenges inherent within the method that may be problematic for researchers. For example, by making groups the unit of analysis, sample size requirements are much greater than what are needed in individual-analysis studies (Hanish et al., 2007). Moreover, researchers interested in examining the entire social network and who are considering using unlimited nominations may be faced with missing data. Although methods have been devised to address this issue (Janick & Larrick, 2005), confidence is diminished when interpreting subtle nuances of relationships within the entire network. Finally, analyzing social networks adds an additional level of complexity above simply examining friendship dyads. At any given time, individuals may move around the network and within (and outside) of subgroups. These difficulties are doubly more difficult among youth, as the parameters may vary according to certain developmental stages (see Cillessen, 2007, for additional discussion).

Yet in spite of these concerns, SNA represents a positive and innovative trend in the analysis of social relationships because the method can help explain the fairly fluid lines between individuals, dyads, and their larger social structure. Particularly among socially isolated youth, a population who until rather recently was considered less important to study than other populations (Rubin & Coplan, 2004), SNA provides one potential method to examine their relationships within the larger network with a greater degree of accuracy.

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